

Aviation News

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DECEMBER 18, 1944



Consolidated Vultee's Stinson Voyager 125: Ready for mass production as soon as material restrictions are relaxed, Convair's post-war personal plane combines features of the Stinson Army liaison plane with others of the pre-war Stinson Voyager 105. The result: a sleek, luxuriously furnished plane which will carry three with ample baggage, or four persons with small baggage allowance. Plane cruises at 112 mph., and has 470-mile range. Safety and reliability have been the major consideration in design, company officials report.

Lewis Reveals JP Research as Major Industry Activity

Discloses that a "very large number" of planes powered by jet propulsion and gas turbine units are being developed by Army and Navy...Page 35

State Legislatures Eye Aviation as New Tax Source

Official federal and state groups study situation with view to legislation; CAB committee works on multiple taxation problem...Page 45

Plants Taxed to Meet B-29, A-26, C-54 Schedules

Design changes and sharply increased requirements also factors in possible spread between output and military needs...Page 34

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CAA Research on Swivel Wheels May Revise Port Plans

Ability to make cross-wind landings, believed possible in projected post-war research, could simplify landing field needs...Page 15

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THE AVIATION NEWS

Washington Observer

U.S. CHAMBER ON AVIATION—There are indications that the policy of the United States Chamber of Commerce which endorsed steamship line participation in air commerce last year on the recommendation of its Transport Committee, may be put to another test this year. These were strong, but ineffective revolts against the stand by Pan American and domestic airline members of the body at that time. The Chamber, generally, has stood on a platform of maximum freedom of the air so far as air policy goes, and supported a policy of regulated competition, with steamship participation as far as airline policy goes.

ENDORSES CHICAGO RESULTS—The Chamber's Committee on International Transport last week endorsed the principles adopted by the International Civil Aviation Conference. Reasonable judgment as reflected in past expression of National Chamber policy has indicated with a stamp. Chairman of the Transport Committee is William K. Jackson, vice-president and general counsel of United Fruit and a vice-president of the Chamber. Aviation men on the committee of 24 members are J. C. Gaiser, Pan American; Jack Frye, TWA; W. A. Pugsley, United; J. E. Slater, American Export; S. J. Solomon, Northwest; and Henry Woodhead, Consolidated. Ralph Dunsen, of American, a member of the committee last year, has resigned. Dunsen and Solomon filed a minority opinion last year in the Chamber's resolution stating that they supported steamship participation only to the extent provided by existing law—which isn't much.

NEWFOUNDLAND—Last minute withdrawal by the British of Newfoundland participation in the world aviation agreement, ostensibly because of doubt of its status, is but

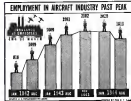
another phase in the horse-trading game the English are forcing in international air. Newfoundland is a Crown Colony, but is in a form of complete bankruptcy that gives the British control of its international and internal relations. It also is the probable focal point for North Atlantic operations.



Two Bell Helicopters—Lower version, seldom photographed, was first in series Stabilizer bar that gives Bell ship its high stability above under rotor blades. First-place model is on way

CHIEFS OF STAFF—Only point at which agreement was fully reached in the World War Post-war Military Policy Committee hearings last summer—that a permanent Joint Chiefs of Staff organization is desirable—is being implemented by the introduction of legislation. Chairman Carl Vinson (D., Ga.) of the House Naval Affairs Committee and Chairman Andrew May (D., Ky.) of the Military Affairs Committee, have simultaneously introduced bills giving the Joint Chiefs of Staff permanent status in the nation's military organization. The organization was organized under executive order and would be disbanded six months after the war. Action is expected immediately after the first of the year.

VITAL FUNCTION—More than meets the eye is involved in the legislation. It does not mean any unification of the services, a point which many experts doubt would be at all efficient, but it does mean coordination and permanent maintenance of the principle of joint command down through both services. But beyond that, there will be many phases of this country's participation in the post-war world that will require constant attention to national policy on the part of the services at a level with State Department functioning. That is probably behind that latest move, which serves notice on the world that the joint chiefs are working as a continuing team in the international power picture.



By WAYNE W. PARRISH

Publisher of "American Aviation" tells of Bell Aircraft's progress in helicopter development



Any estimation it will be some time before flying around the country in a helicopter becomes widespread. However, great strides are being made in the development of rotary wing aircraft. One commanding achievement in Bell Aircraft's new helicopter which, largely through two important innovations, has made possible both stability and precision control.

"One innovation is a two-bladed rotor, supported on a universal joint so that it is free to 'see now' and at the same time to turn on its longitudinal axis. The second is a hub which, gyroscopically, tends to keep the rotor

in its plane of rotation regardless of the position of the mast. This is a basic Bell Aircraft patent which works for stability under all conditions. It is found only in the Bell helicopter.

"The Bell helicopter represents a type of aircraft man has long wanted. It can take off and land on a very small plot of ground, and even in winds of nearly gale force it can fly up, down, backwards, forwards and sideways—and still remain stable and under perfect control.

"When ceiling and visibility are too poor for a fixed wing plane to fly—then it's 'helicopter weather'—for the

helicopter can slowly, safely feel its way through smog or fog.

"The helicopter will have many important industrial uses in the post-war world. Plans are already being formulated for its use in crop dusting, forest fire patrol, pipe line patrol, emergency rescue work, tender work for airlines, executive travel, and many other peace-time applications.

"When this progressive company can turn its skills and resources to producing peace-time needs, look to the Bell helicopter to be one of the leaders in the post-war aviation field."

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BELL Aircraft

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December 18, 1944

Distribution Cost Main Hurdle In Allocating Surplus to Schools

Providing of tools, instructional booklets, teachers and other facilities for educational work in aviation are other serious factors confronting plan to utilize surplus equipment in training students.

By WILLIAM G. KEY

Costs of distribution are going to be one of the principal factors in allocation of surplus aircraft equipment for educational use. Other factors causing concern now are provision of tools and instructional booklets necessary for use of the equipment, teachers and teaching methods in the period before reserve personnel are available, and provision for allocation, under equitable arrangements, to trade schools for which provision was not made in the Surplus Property Act.

The Advisory Committee for Utilization of Surplus Class E Aeronautical Equipment for Edu-

cational Purposes has suggested a program to Lt. Col. William B. Harding, chief of the Surplus Property Aviation Division, under which designated "representative agencies" will assume responsibility for allocation and distribution of surplus equipment to schools in their category.

School Classes—These "representative agencies"—probably state education departments for public schools through the high school classification, the American Association for Junior Colleges, the Association of American Colleges, the National Catholic Education Association for parochial

schools and others yet to be designated for other institutions—will conduct a canvass of all eligible schools within their jurisdictions to determine requirements for instructional material commensurate with their plan for training in the future.

Each agency will have a list of the type of materials available or scheduled to be available within a reasonable geographic area. This list will be compiled from a non-technical master list now in process of preparation and probably will total some 35 pages after having been shortened from an original draft of 32 pages.

Advantages Listed—The Advisory Committee submitted to Col. Harding that such a plan would have the following advantages: It will facilitate more rapid handling of a larger volume of educational aeronautical equipment than has heretofore been possible; it will reduce the cost of material to the individual school by delivering it through the nearest disposal storage depot; and it will insure a permanent organization for dis-



CHURCHILL'S MODIFIED LIBERATOR EXPRESS:

Already historic as Premier Winston Churchill's conference plane, this modified C-47 Liberator Express may be used again by Britain's war leader. This photograph is the first permanent publication since the "Climax" was given a seven-foot extension of its nose section at Consolidated Vultee Aircraft Corp's

Tacoma modification plant. It can carry 20 passengers. In the fuselage are seven bunks, an electric galley and refrigerator, work table, and a conference table for use in flight. Recently it made a round trip from Montreal, Canada, to Sydney, Australia, in four days, 16 hours, 10 minutes of flying time.

tribution of aeronautical educational material after the close of the present war.

It is not anticipated that the program can be initiated much before the end of the war because of various factors involved. A primary one is the lack of testbeds, and a lack of knowledge of requirements and possibilities in local schools, and lack of a definite program of any size in many states. A second, and vital one, is that much of the equipment, such as engines, requires special tools for assembly, disassembly and repair. These are not available. A third is the lack of instructional booklets that must accompany each article if it is to be of value to the school.

Cost Serious Problem—Although there is hardly a measuring stick available, the cost factor is expected to be the most serious of all, since it will be necessary for the schools to pay fixed packing charges and delivery costs for articles to be sent to the students. In the past there has been considerable difficulty with this factor in distribution of material by the Army Air Forces and also by the Navy.

It is felt by some close to the issue that an educational program for educators will have to be undertaken in some phases of the program. There are many uses of the surplus equipment other than shop practice, and many schools

may not take advantage of this element in surplus. It has been suggested, for example, that simulated cockpits would be of very great value in training that hydraulic mechanisms could be used for demonstration, in other than flight or aviation classes. There will be synthetic devices of various types that will have application and value in many ways. Virtually a new approach to educational processes will have to be taken if full utilization is obtained from the material available.

Se safeguards—The surplus equipment will have to be safeguarded with safeguards to prevent its ever being used in places again. This matter is still under discussion, but the final answer probably will be some system of property accountability that will assure destruction of the material after it has served its purpose. Many of the engines and other equipment will have been constructed of condemned and rejected parts and used only now in service educational programs.

Under the Advisory Committee plan, the Surplus War Aircraft Division of Defense Plant Corp. will offer the material as it becomes available to the representative agencies, with a stipulation that it must be accepted within a specified period after which the offer will be canceled.

Schools to Specify Needs—Schools will be notified and in turn would return a list of items

they desire to the representative agency, where they will be screened against the schools program.

Requirements for schools will be made up in advance, and the requests of each school accompanied by an authorization for the expenditure of school funds for packing charges. When materials are available, the schools will be notified and then must sign a transfer agreement and a check to cover the packing costs. SWAD will then release the materials to the schools at the warehouse.

1300 Canada Planes Declared Surplus

Total of 277 of craft, mostly trainers, sold; many go to South American countries.

More than 1,300 service planes have been declared surplus in Canada and 334 of these had been sold at the end of November. The bulk of these trainer types, with spare parts and equipment sold, a total of \$393,248 has been returned to the government.

The War Assets Corp., Canadian government corporation, subcommittee of the War Assets Administration, has disclosed that many of the planes have been to South American countries. Informed Canadian sources say that most of the trainers, probably Fiestas and de Havilland Devils, went to purchasers in Mexico, Brazil, Ecuador, Peru and the British West Indies. A Grumman JRP Goose was sold to Venezuela for \$100.

Sees field in U. S.—Some of the planes also were sold in the United States, going to a mid-western buyer after clearance under an agreement with surplus officials in this country under which neither country will sell to each other's nationals except when type shortages make such sale advisable.

Seven planes have been sold to Canadian air transport companies, with a second Grumman Goose bringing a top price of \$33,000. A Beechcraft went for \$16,500 and five Lockheeds, probably Electras, brought an average of \$18,000 each.

Trainers—Of the trainers, 155 have been sold at an average price of \$2,407, with nearly half expected to be exchanged for replacement parts. Storage of spares and replacement parts is given as the reason for sale outside of Canada,

since the types are not now manufactured there. It is known that a group of Fleet trainers was sold to the Mexican government.

The surplus declarations have generally been single- and twin-engine trainers, small obsolete transports and obsolete light and medium bombers.

Canada's policy in general follows that of the United States in handling combat types, although a few Lockheed Hudsons may be converted for temporary transport use. So far, no combat types have come into surplus, Canadian officials say.

Where no prospects of sale exist, WAC is removing wings and ad-
vanceable instruments and storing the plane carcasses in outside storage.

Aviation in Schools Makes Rapid Gains

But, compared with progress in other fields, has hardly been scratched.

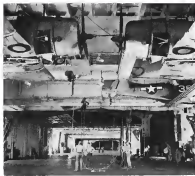
Considerable progress is being made in development of aviation education in the school systems of the nation, now under active study by a number of groups in industry and education, but the surface has for only been scratched.

Although schools in all 48 states now incorporate aviation classes of one type or another, the degree of participation and the number of schools involved varies widely.

Only nine states can be said to have programs for post-war aviation education completed, and even in these states development of activity at the level of the individual school must still be undertaken. However, these nine states and several others now studying the subject, are undertaking a broad program of air age education that now begins with vocational or instructional planes.

Foundations—There are several movements under way to intensify the school program, and at least three foundations for air age education are being operated now or projected for the immediate future.

Probably of primary broad interest is the development of state programs for elementary schools, high schools and junior colleges. These have been completed in at least eight states, and are under study in other states at present. The Aviation Education Service of



PLANES STOWED ABOARD CARRIER:

This unusual picture shows method of stowing planes, not needed at the moment, on the hangar deck of a modern American airplane carrier.

the Civil Aeronautics Administration has been acting as consultant and coordinator to the state departments of education in their work under the direction of Bruce Uthas, chief of the service, and Edgar Fuller, principal educationalist of the service.

First state to complete its program was Wisconsin, followed by Illinois, Colorado, California, Connecticut, Pennsylvania, the District of Columbia, and Texas. Tennessee has been active in promoting aviation education through its State Bureau of Aeronautics, and only last week announced that a division of aeronautics has been established in the Department of Education to cooperate with the Bureau of Aeronautics in carrying out an extension of its pioneer program. New York State has been active in working out air education in cooperation with the State Board of Aeronautics. Schools have been studying their program independently.

In the past, the most extensive programs have been carried out in the Texas-Gilchrist area, in California and the other Pacific Coast states, in Pennsylvania, New England, Illinois and Wisconsin. While Tennessee has been active, educational circles say that the state has been hampered by lack of just the division announced last week

to work in the department of education. The most backward states in the development of post-war air age education have been in the south and in the Prairie states, although even in these sections some individual states have been making marked progress, notably Alabama at the higher educational levels.

The National Association of Secondary School Principals and other groups within the framework of the National Education Association are working out extensions of the program. A forthcoming issue of the Secondary School Principals' Bulletin is devoted to the program of states already developing their post-war operations in the air field. This may be expected to arrest interest in states not now active.

Educational Groups—The three education foundations are the pioneer one of American Airlines—Air Age Education Research—and the Air Age Education Foundation, for which the American Association of School Administrators is making support, and as yet unnamed foundation that is far along in the planning stage. This last would be organized by the aviation industry as a whole, but would be operated independently to assist state and other education groups in working out programs, supply-



SEAPLANE VERSION OF A JU 52:

Royal Air Force men check a seaplane version of a JU 52 for bomb trays at an airfield in Greece.

ing classroom aids and render other assistance in development of aviation education.

At the college level, a recent survey of Bendix Aviation Corp. indicated that only one-third of 1,300 leading American colleges and universities are actively interested at the moment in aviation education. Of the 1,300 total, 456 colleges showed "T" expressing interest. Of these, 227 now offer courses of study in aviation. Two hundred twelve of these plan to continue and some to expand their courses after the war, while 15 are uncertain.

At the university level, however, this phase. Of the 146 not currently teaching aviation courses, 99 have definite intent of establishing air education courses, but 41 are still uncertain and fear have no present plans.

Facilities Lacking—However, a survey of facilities at the various colleges now teaching aviation courses, showed that only 76 of the 227 have necessary facilities for a permanent program of aviation education. One hundred sixty report fairly adequate or "limited" facilities and stress that they need additional equipment.

When this is measured against the wartime activities of colleges training youth for Army and Navy programs, it reveals that there is still a large gap to be closed before aviation education comes into its own even in these progressive schools.

The state programs for youth below the junior college level are not designed to give the student an education in aviation as such, but they lay the groundwork for such education. It emphasizes education of the student and re-education of adults in the effect of aviation on

every aspect of human life and activity, state programs of teacher guidance to develop competence in instructing students in air age education, re-education of the curriculum to meet new needs; proper preparation and use of materials such as maps, films and reading material. At the high school level, the pupil would have opportunity both for general courses in vocational subjects as well as a start in the aviatorial phase.

Also that the high school level, the state programs recommend four hours of actual flight experience for students. This would be completed by similar operations and designed more to demonstrate flight principles and operation of equipment rather than instruction in flying, which is recommended only at the junior college and college level. W. G. K.

Tenn. Education Dept. Forms Air Division

Unit organized to promote pilot training in schools, foster pilot construction and serve as clearing house for aviation development throughout state.

Establishment of a Division of Aeronautics in the Tennessee Department of Education, with Charles H. Gilmore, former coordinator of the Naval Cadet CPT program as director, and Kenneth Newland of CAA aviation education service as consultant, is announced.

Purposed to promote and coordinate aviation education in the state, the new division has as specific objectives:

- ▶ To assist colleges in programs for training aviation teachers.
- ▶ To aid high schools and colleges in obtaining equipment and instructional materials.
- ▶ To establish airport operations facilities at Memphis, Nashville, Chattanooga, Knoxville and Tri-City airports, to be attended by representatives, principals and teachers of high schools.
- ▶ To develop a plan for extending aviation to more high schools.
- ▶ To arrange for visits of high school and college students to five major airports in the state.
- ▶ To encourage CAP cadet programs.
- ▶ To serve as clearing house for aviation education ideas and materials, and instructional aids, for the state.
- ▶ To give colleges in the state over their own airports and air officers

have airports leased. Among the officers at Pulaski University, Nashville, believed the first Negro university to own an airport.

Extension Department of University of Tennessee is straining for correspondence training of aeronautics teachers in Tennessee high schools, financed by the state bureau of aeronautics, based on experience with a previous training program for nearly 300 teachers in seven state vocational schools and universities, including both ground school training and 10 hours flight.

The University also projects a "workshop" in aviation education for correspondence training of aeronautics teachers, for the 1945 summer term in which materials and teaching methods will be studied and a program of aviation education will be set up for the schools of the state.

1,000 Students Enrolled—Nine hundred high school students in 16 schools throughout the state are now enrolled in a one-unit aeronautics course.

Aeronautics teachers have organized the State Association of Aeronautics Teachers with Eugene Riney, of Whitesboro High School as president, Gilmore as executive secretary, and vice-presidents from the three sections of the state, James Chandler, East Tennessee, Jacob Shapiro, Central Tennessee, and J. P. Strawberry, West Tennessee. The association will work with the aviation division in expanding the state's aviation education program.

Build 18,000-Ton Die Forging Press

An 18,000-ton die forging press is now under construction, designed primarily for use in producing large magnetic boron boron and in the aircraft industry and is expected to aid materially in development of larger and more efficient aircraft components. Built by Metal-Workshops officials, the machine that the new press will be built by Metal Machine Co., of Pittsburgh, said that in the past there has been no die forging press of more than 10,000 tons capacity in the country. Magnetics will forge up to the new press in length have been made by the Germans but the new American press will enable the production of still larger sizes.

The press will weigh about 5,000,000 pounds and exert a pressure up to 34,000,000 pounds.

NATA Asks Reforms in Legislation and U. S. Personal Aviation Policy

Association at St. Louis meeting presses vigorously for federal action to eliminate useless rules and requirements hampering development of private flying; seven resolutions adopted.

By ALEXANDER MCKIBBLY

Encouraged by official indications that non-scheduled aviation and personal planes are finally moving forward from the forgotten back seat to which the federal government has relegated them in the past few years, the National Aviation Trades Association at its closing convention sessions in St. Louis pressed vigorously for actual federal action to secure the promised reforms.

Seven resolutions adopted recommending reforms in existing legislation and administrative policy: ▶ That CAA broaden its policies to include problems of non-scheduled aviation and private flying. ▶ That the Administration of CAA recognize an administration with equal sections for scheduled and non-scheduled aviation, that the Assistant Secretary of Commerce encourage, foster and promote these changes.

▶ That Congress and state legislators keep aviation legislation at "an absolute maximum" and as uniform as possible. ▶ That a trend toward municipal and state-owned aviation enterprises be opposed in favor of private ownership and management of air services and facilities.

▶ That existing policy for disposal of surplus aircraft by the government in direct sale to purchasers "not in the public interest" and favoring disposal rather through established channels. ▶ That the present interpretation of the O. A. Bill of Rights cause a hardship on veterans by preventing them from taking flight training in 30 to 45 weeks, and urging revision of this policy.

▶ That Civil Air Regulations have tended to stifle and discourage the development of private flying because of over-regulation, and recommending that requirements be revised, relaxing the current over-stringent demands for physical condition, aeronautical knowledge and skill.

▶ That NATA members shall study effect of landing facilities within their areas of operations and report their own and other local

views on local needs to the NATA office for tabulations and presentation to proper state and federal authorities for action.

Attack on over-regulation of flying was made by William A. O'Leary, Kansas City, former NATA president, in a convention address which charged that existing legislation "has abused, neglected and almost totally ignored non-scheduled aviation. CAA and CAA have handicapped it still more by promulgation and enforcement of ridiculous, thoughtless regulation."

"A contraction of this policy will necessarily throttle non-scheduled aviation and private flying at the very beginning of the new era of prosperity that is prophesied for us," he warned. "A successful man won't take the time to make himself an amateur meteorologist or an amateur engineer or a walking encyclopedia of government directives before he is permitted to own and fly his personal plane. The aircraft industry and its very best designers and engineers can never design an airplane that will make worthwhile the conquering of the endless maze of red tape in the CAA."

Revisions Proposed—CAA Solicitor Gordon Jones Luskford pointed out that existing regulations are "an inheritance from several previous organizations," and outlined the work done by the CAA Safety Bureau in proposing revisions for assessment by pilots. Deadline for comments is set for Dec. 30. Proposed revisions are to be presented for adoption the first week in January, and if adopted, they will be effective some 60 to 90 days later.

"It is my belief," Luskford said, "that chiefly too much emphasis has been placed on physical requirements for pilots. It seems to me that the emphasis should be free of an ailment which is likely to incapacitate him suddenly and without warning and who has reasonable vision should be eligible to fly."

Wing Production Urged—Importance of building aircraft was production at full speed must take

precedence over any reconstruction projects. Grover Looming, WPA aircraft consultant, told the convention, but added the board was ready and willing to permit operation of civilian manufacturing which contributed to the war effort or in areas where manpower was sufficient to prevent interference with war projects.

He pointed out that, while companies which may produce prototypes in easy labor areas have an advantage over other companies which are still on war work projects.

Roosevelt Letter

A definite indicator of the recent growth in importance of non-scheduled aviation in the entire national picture was the letter from President Roosevelt received by NATA President Thomas Turner, at the St. Louis meeting, and read to the convention.

Chairman, among the personal letters received by Colored Turner by President Roosevelt, provided the letter's effect on the NATA actions which required the Indianapolis base agency to office for a second term.

Addressed to "My dear Colonel Turner," the letter said:

"Please convey my personal interest in all the members of the National Aviation Trades Association, both those associated with you at St. Louis and those at home. I am an aviator and an aviator's services in all quarters of the world. The annual meeting of the National Aviation Trades Association should remind an all of the splendid role that the Association's members have played and are playing in the national aviation. The country takes pride in and expresses its gratitude for the fine work of your members in the armed forces, in the operation of war transport schools for the military service, in the work of flying during the years of national emergency.

"I am sure your good wishes in all your plans for enlarging aviation's future contributions to the welfare and prosperity of our own people and all the long-coming generations of the world. I know that you, who have labored so valiantly in the military and military aviation to its present high state of proficiency, will be in the forefront pushing the flying to its post-war developments."

nets, the advertising might be equated by a transportation adjustment favoring the company which competes its war work. Emphasizing that this was his personal opinion, Looming said such a settlement would give the company extra funds to catch up with other companies in development and marketing.

► **Shooting Feeders**—Barman, R. Otto, secretary of the Federal Airline Association, and president of the Ohio Aviation Corp., discussed the fallacy of "shooting" feeder operation plans, pointing out that Americans who ride the feeder lines will demand the same high standard of air service, safety and comfort that they have been accustomed to getting on transcon.

He predicted railroad and bus post-war improvements with growth in new luxury of accommodations and increased speed with which the feeder lines must compete and warned that there may be a period of "in the red" operations for both feeder airline and public, until the service was fully developed.

Wins Cullier Trophy

Navy Capt. Luis de Flores awarded prize for development of special devices used in training combat pilots.

Award of the Robert J. Cullier trophy to Capt. Luis de Flores, USNR, for his contribution to the safe and sound training of combat pilots and crew in developing a variety of synthetic devices, is announced by Grover Looming, chairman of the Trophy Committee of the National Aeronautic Association. Current holder of this distinction award is Gen. H. H. Arnold, who received it a year ago for his organization and leadership of the AAF throughout the world.

► **For Greatest Air Achievement**—The Cullier Trophy is annually founded by the late Robert J. Cullier, of New York City, pioneer aviator and is awarded annually by the National Aeronautic Association for the greatest achievement in aviation in America, the value of which has been demonstrated by actual use during the preceding year.

Capt. de Flores has been responsible for many simple and efficient devices to improve training, safer and more inexpensive training of military aviators. He served as a civilian in the Navy Department during World War I as an expert in charge of aircraft instrument development. He was com-

mmissioned a lieutenant commander in the Naval Reserve in 1918, having learned to fly previously. Called to active duty in 1942, he was his Navy wings at Pensacola before going on duty with the Bureau of Aeronautics, where he is now Director of Special Devices. He was commissioned a captain in November, 1942.

Nutt Heads Packard Air Engine Division

Second major announcement in two weeks selecting members of Packard-Motor Car Co., field of post-war aircraft engine, into the staff of appointment of Arthur Nutt, until several months ago vice-president and director of Wright Aeronautical, as director of Packard Aircraft Engineering Division.

Packard disclosed recently that permanent flight test facilities are being built with Defense Plant Corp. funds at Willow Run Army Air Base, with temporary quarters for work now in progress in the Ford Willow Run plant. New re-

search engineering facilities have been placed in operation in the past year at Toledo.

► **Producing Rolls-Royce Engines**—Packard has been producing Rolls-Royce Merlin engines for the North American P-51 Mustang and other planes, but has not indicated it will switch over to the later-model Griffon, and industry sources say the company is developing its own engine design.

Nutt will maintain offices in Toledo, working under Col. J. G. Vincent, Packard vice-president of engineering. He had been associated with Curtiss-Wright since 1918 and has been a pioneer in engine development since that time. He is a former president of the Society of Automotive Engineers.

2 Firms to Produce New C-82 Packet

Fairchild and North American to cooperate in carrying out large AAF order for military cargo planes.

Efforts of Fairchild Engine & Aircraft Co. and North American Aircraft will be joined in production of Fairchild's recently announced new military cargo airplane, the C-82 Packet.

The Army Air Force have ordered a large underlaid quantity of the aircraft from Fairchild. Fairchild engineers will furnish design and production engineering required to get North American into the earliest possible production of the plane. Fairchild will also continue to produce the maximum quantity of C-82's possible in the facilities available at its El Segundo, Calif., plant.

► **Facilities**—North American has facilities in its large engine plants at Dallas and Kansas City, Kan., where the C-82 will be built. The company has established a reputation for quantity production on three outstanding orders of its own, the P-51 Mustangs, the B-26 Mitchell and the AT-6 Texan.

The C-82 is the first successful plane designed expressly for cargo-carrying since the start of the war. It is designed for carrying tanks, artillery, ammunition, troops or paratroops and has a range in excess of 2,000 miles. It is in the 30,000-pound class and is powered by two Pratt & Whitney Double Wasp engines of 1,100 hp.

Delegates from 14 Nations Sign "Five Freedoms" Document

Agreement, based on U. S. principle of building up world air transport with as little restriction as possible, makes available for countries desiring it a free air, restricted only by such provisions as are called for to protect sovereignty.

By MERLIN MICKEL

Delegates from 14 nations, including the United States, have signed an agreement that if accepted by their governments, will have an immediate effect for the airplane states the broadest concept of open skies for international air transport.

The agreement is the "Five Freedoms" document drawn by the U. S. at the International Civil Aviation Conference at Chicago. A week after the conference ended, it had been signed by the U. S., Afghanistan, China, Dominican Republic, Ecuador, Haiti, Honduras, Mexico, Nicaragua, Peru, Sweden, Turkey, Uruguay and Venezuela.

► **Five Freedoms**—These nations, and others who may sign the document later, thereby signified willingness to give each other the right to cross their own territory, make non-traffic stops, carry out-bound and inbound traffic anywhere among the agreeing states, and carry intermediate traffic unless other nations exercise their right to prevent it.

► **These freedoms**, based on the U. S. principle of building up international air transport with as little restriction as possible, will change the entire face of international air relationships within the space of less than two months. They make available for nations desiring it a free air restricted only by what provisions are called for to protect sovereignty.

► **Standard Form**—The traditional method of bilateral agreements, the only method when the conference started last Nov. 1, still can be used by nations desiring it. A standard form was set up for such agreements before the conference adjourned.

A two-freedom agreement, embodying freedom of transit and non-traffic stop, was signed by representatives of 38 nations, including all but two of those whose delegates signed the five freedoms document. The United Kingdom subscribed to this more restricted plan, with the reservation that the signature did not commit New-

foundland. Rejection was made that Newfoundland was a crown colony which might again receive independence, the signature being that the matter would be taken up with the Newfoundland government.

► **Friendship**—Since this is a provisional government, in effect a trusteeship, by a king-appointed governor and three British and three Newfoundland commissioners, there appeared to be nothing that might delay such a consultation. The answer was whether Newfoundland is at or out of the agreement.

That answer is vitally important to the U. S. and Canada (although the latter signed neither the two-freedom nor five-freedom document) because, as was pointed out in Aviation News last April, Newfoundland is the key to North Atlantic operations over the great circle route and without it the U. S. trans-Atlantic operators almost inevitably would be confined to the South Atlantic and via Bermuda and the Azores. A representative of a least one U. S. line line—United Nations, the president of Transcontinental & Western Air, Inc., in charge of foreign route development—contended that by refusing to include Newfoundland in its acceptance of the two freedoms, the United Kingdom had "staged to take the stranglehold of the Atlantic." The incident emphasized Newfoundland's importance in standard form agreements.

► **Plethora Session**—At the final plenary session of the conference, five documents, typed on gold-embossed treaty paper and bound in leather, were available for signing. In addition to the "final act" of the conference, there were four appendices. Two of them were the five-freedom and two-freedom documents. The others were an inventory agreement and the permanent convention.

The final act, signed by all 32 nations who sent delegations, except Liberia, contained the standard form of agreement for provisional air routes, the bilateral

agreement form for those countries desiring to go ahead by that method. One document also contained the several resolutions passed by the conference, and a roster of the delegations and credentials.

► **Final appendix**, establishing a provisional international organization to function until a permanent convention on international civil aviation comes into force or another resolution is held, was signed by 33 nations. Thirty-one signed the convention itself, which is the second appendix to the final act. Third and fourth are the two-freedom and five-freedom appendices, respectively, which air services transit agreements.

A fifth, which had the universal approval of the conference, contained the drafts of technical annexes.

Ramsay Sees Planes With Speed of Sound

New Bureau of Aeronautics chief with House Naval Affairs group of progress of aviation in four war years.

Aircraft with the speed of sound are forecast by Rear Admiral Walter G. Ramsay, chief of the Bureau of Aeronautics.

"It is anticipated that in the near future top speeds of fighter aircraft in service will approach the speed of sound," he was quoted by further marked increases in rates of climb and service ceilings," Admiral Ramsay told the House Naval Affairs Committee.

► **Wings of progress**—To capture the imagination, Admiral Ramsay commented that most spectacular of new developments are those connected with the adaptation of science to aviation, the dramatic changes to aircraft use, out-shedding, among others, being the advent of the night fighter.

► **Speeded by Altimeters**—While he did not mention it, many of these devices are in production for commercial craft and already are under study by commercial air line engineers.

Electronic weapons of all sorts, the Admiral said, have played a major role in the production of the present war and the application of new and improved devices is expected to increase still further our future margin of superiority over the enemy.

► **Advanced Designs**—Planes still

CAA Research on Swivel Wheels May Revise Nationwide Port Plan

Ability to make cross-wind landings, believed possible in projected post-war research, could simplify landing field needs in many cases to single flight strip.

By BRYAN STUBBS

As the time approaches for the light airplane industry's second attempt to establish a volume market, the Civil Aeronautics Administration is confronted with the question whether to recommend its aircraft and engine development activities.

The Bureau of Air Commerce's design program was thrown out nearly a decade ago because of protest from the industry, which argued that prospective purchasers were ignoring existing models and waiting for Director Clegg Wiley's famous "7000 dream plane."

► **Factor of Safety Models**—Vad's design project, which was engineered by John Giese and others, is widely credited with fattening the present European

Stalder, and other safety models, and it can be contended that the Bureau's development section was far-sighted and useful. These engineers, who insist that their work is ill-advised publicity that caused the trouble.

CAA, with the approval of T. P. Wooten, is preparing to try further development as an end to the industry. Officials believe that if the benefits go direct to manufacturers for optional use in their designs, without any business, the project will be approved. Extent of CAA's development effort will depend on initial studies, and on the industry's attitude.

► **Wheel Research**—Number 1 project is swivel wheels, CAA told us in a request for information.

idea to cover faster wheel experimentation, and it was cut out by the Budget Bureau. Nevertheless, funds probably can be found in another drawer.

Top men of CAA do not feel quite safe in sponsoring and administering the proposed post-war construction of thousands of airports and airparks for private and taxi-charter aviation while swivel wheels remain in an uncertain stage.

If cross-wind landing should become common practice after many of the fields are built, a great deal of money spent for land and for clearing approaches and for zoning would have been wasted. A single runway field requires only a fraction of the land and approach work as does a multiple-runway field.

► **British Tests**—Possibility of success with swivel wheels is based on a 1934 experiment sponsored by the British Two Engine Committee, O. F. MacLaren, Ltd., and MacLaren Undercarriage Co., Ltd., have developed satisfactory swivel wheel arrangements, which are produced by Aircraft, Ltd., under MacLaren license.

An agency of the British Government has released reports on trials of the MacLaren swivel wheel design, promising them satisfactory. They have been in use for some time on the Magister and Oxford trimmers, and they are being installed on North American P-51 Mustangs. The reports indicate that landings have been made successfully in crosswinds of 80 mph velocity.

► **May Use "Erepsco"**—If CAA can get started on a swiveling wheel project, probably initial work would be done with an Erepsco belonging to CAA, and the project already conducted by Piper, on a Cub plane, would be enlarged in scope. Those who have studied swiveling wheel problems say that bigger planes can be equipped for cross-wind landing, but how big they do not pretend to know.

Success on swivel wheels (preventing them either good or impractical) would be followed by development on such problems as the reduction of noise caused by both engine and propeller—a serious obstacle confronting those who would locate landing facilities close to dwellers' areas.

In general, development work which would pay off to manufacturers only on a long term basis would be regarded as suitable for government participation.

2 Airpark Programs Debated in Wichita

Planning Commission and Chamber of Commerce committees offer rival plans for landing fields inside or close by city limits.

Two airpark programs, one of which calls for four airparks within the city limits of Wichita, Kan., are the subject of current debate between the City Planning Commission and the aviation committee of the Wichita Chamber of Commerce.

The aviation committee's program calls for a principal downtown airpark within three blocks of the city's business area, and for three other airparks in the city limits, two around residential areas and a third providing landing facility to the north and industrial districts.

► **Copter Field Planned**—The planning commission is advancing a program prepared by Earlard Bartholomew and Associates, consultants, St. Louis, which would build three airparks, just outside the city limits, north, south and east, and a helicopter landing field in the heart of the city.

Both bodies are agreed that Wichita also must have a secondary municipal airport with options for future expansion into a second principal field, to supplement facilities of the present Class 3 municipal airport.

► **Comprehensive**—A conference be-



STINSON VOYAGER 125 IN FLIGHT.

First flight picture of the new Consolidated Vultee Stinson Voyager 125 three-to-four-place plane, which arrived at KATB St. Louis last week with less than 10 hours' total flying time. Plane has 24 foot wingspan, is equipped with wing stall and flap, powered with 125 hp Lycoming engine.

tween the planning commission and the aviation committee is being called in an effort to compromise the principal point of variance over the main downtown airparks.

Meanwhile the city commission of Wichita recently rejected a demand for a law prohibiting flight students from flying over the city. A recent ordinance outlawing and modernizing previous city laws on aviation, excluding no radical changes from the previous laws. It sets 2,000 feet during daylight, and 3,000 feet at night, as minimum altitudes for flying over the city except for landings, takeoffs and emergencies. Only planes licensed by CAA, or those owned by the armed services, or a recognized agency of the government or manufacturer, may fly over the city.

Eye Tests Tested

Through cooperation of the National Research Council, the CAA safety bureau will soon have the formal evidence necessary to determine what constitutes "reasonable vision" required of a pilot. Failure to have a definition for the term was delayed revision of physical standards for pilots. Jesse Lawford, safety bureau director, points out.

Now the NRC is working on a project to put 100 to 200 applicants for license, whose vision is under present standards, through a controlled flight instruction course. Lawford believes results of the project will show visual acuity standards can be reduced for the private pilot, with no sacrifice to safety, so that the examination can be given by any reputable physician.

Asks U. S.-Controlled Aviation Tax

NAA, committee for California tells West Coast group of need for uniform federal levy to be used for benefit of airports to replace state systems.

Replacement of all state aviation gasoline taxes with a uniform federal tax, revenue from which would be allocated directly to airports and landing facilities, was urged last week in Hollywood at the California Aviation Conference.

Sponsor of the proposal was John R. West, national councilor for California, National Aeronautics Association and president of West-Margate, Inc., Los Angeles advertising agency.

► **Cites Heavy Cost**—A personal airplane owner who uses an Erepsco and a Stinson extensively in business and pleasure flying, West termed state aviation gasoline taxes "a popular form of stealing money from people in aviation." He estimated that varying state aviation gasoline taxes now in force in 18 states will be bringing those states a total return of nearly \$100,000,000 annually, a year or two after the war.

West contended that few states now collecting and keeping aviation gasoline taxes offer airport or airports development in return for taxes paid by airlines and personal airplane owners. He said that of the 18 states now charging an aviation



TAYLORCRAFT FOUR-PLACE MODEL 15:

Excellent suitability for front and rear riders varies Taylorcraft Model 15, new four-place plane, demonstrated recently at St. Louis. Plane has 125 hp Lycoming engine, and now new wing with extremely low stalling speed. Company says plane's range from stalling to top speed is "greater than ever obtained in any previous wing design." Seats have Airform cushions, and rear seats are adjustable with handcranks. Flaps are operated from a crank on instrument panel. Plane has dual controls, and a new electric-hydraulic shock absorber system. Price may run around \$4,000.

tion tax and using it for state purposes, might open up the funds thus raised for the building or maintenance of highways and roads.

Service Stressed At Hawthorne Talks

Better service and customer reliability was the main theme of a recent two-day managers' conference held for 14 key officials of the Hawthorne organizations, of Columbia, S. C., under leadership

of Beverly E. Howard, head of Hawthorne airport operations systems. Principal speaker, W. T. Sawyer, formerly in sales training work for General Motors Corp., and former adviser to the Turkish government, pointed out that too many people in the flying business still segregate themselves from potential customers by wearing "fuzzy uniforms" and maintaining an air of superiority and mystery which doesn't sell airplanes or flying.

Consensus Course—Sawyer recently concluded a course in stu-

dium relations for instructors at the Hawthorne Columbia base, and similar courses are projected at the other Hawthorne bases, at Greenville, S. C.; Greensburg, High Point, N. C.; Rocky Mount, N. C., and at bases to be reopened when the war is over, at Charleston, S. C., and Washington, D. C. The course included a buffet luncheon attended by 50 leading state, city and aviation officials and business men, and a luncheon at Columbia municipal airport, where Hawthorne has recently completed extensive improvements for visitors and pilots.

'Copter Club Formed At Vought-Sikorsky

Employee group to build own rotor craft as soon as materials are available.

The Alpha Helicopter Flying Club, composed of 16 Vought-Sikorsky Division Limited aircraft Corp. employees of Bridgeport, Conn., is awaiting relaxation of materials restrictions to begin construction of a one-place helicopter powered by a 50 hp. engine for the club's use.

Believed to be the first amateur helicopter flying club in this country or perhaps in the world, the group organized in April, 1945, accepted a contribution in June, and set out to build its own helicopter, since it was impossible then and still is to buy one, except for military uses.

Design Begun—In August, construction was started on the large of a two-place helicopter with overhead main rotor and compensating smaller tail rotor, similar in many respects to the Sikorsky. The design of power transmission, using strips of ash and pine in a "basketweave" design similar to the construction of the Scotch Wellington bombers, was completed with steel tubing. It was completed in November, 1945, but restrictions prevented obtaining equipment and other materials to complete the craft, so further work was abandoned.

All club members contribute not only financial support but also work toward building of the helicopter. Weekly dues are assessed, proceeds used entirely in buying materials for the projected one- and two-place aircraft.

Membership—Club membership is open to all persons interested in development of the helicopter.

Revised Road Bill Near Final Passage

Flight strip section removed with provision for extension or relocation of highways around airports, subject to consultation of port authorities.

The Federal Highway Aid Bill, which the disapproved provision for building flight strips by the Public Roads Administration, was expected at press time, to reach final passage within a few days.

The flight strip section was eliminated from a revised bill reported by a joint Senate-House conference committee, substituting a new section providing only for extension or relocation of roads around airports, which is to be subject to consultation of airport authorities, state highway departments and the Public Roads Administration.

Victory for CAA and CAB—Defeat of the flight strip section is a victory for CAA and CAB, whose representatives vigorously opposed the measure on the ground that it would permit location of flight strips to the detriment of reference to the CAA national airport program, and would divert funds from that program, thereby possibly depriving some communities of much needed highway funds, a second of \$1,000, third of \$500, and ten \$100 grants. They have been donated by Andrew J. Hare, president of Hare Publishing Co., New York City. Winners of the top awards also will receive plaques, while the others will receive honorable mention certificates.

Reps. Jennings Randolph of West Virginia and Clarence Lee of California are credited with leading the House fight which resulted in elimination of the provision there and eventually to its final removal.



AMPHIBIAN USES 4-BLADE PROP.

Another entry in the small amphibious class for personal plane fliers is the two-place Applegate amphibian, at one time sponsored by Piper, and now being further developed as an independent project, at Elwood, Ind. A four-blade shaft propeller is fitted to the engine which is mounted above and at the rear of the wing. Plans for serial built, and a second wing design different from that of the original craft.

Plan Top Awards

Thirteen prizes totaling \$7,500 will be awarded for the outstanding contributions to the nation's airport development in 1945, based on achievements between Jan. 1 and Sept. 1. The competition, designed to stimulate private and community interest in construction of landing facilities, will be judged by a committee of aviation leaders designated by the National Aeronautics Association.

The awards include a \$5,000 first prize, a second of \$1,000, third of \$500, and ten \$100 grants. They have been donated by Andrew J. Hare, president of Hare Publishing Co., New York City. Winners of the top awards also will receive plaques, while the others will receive honorable mention certificates.

Hawthorne Expands

Steps to operate the Fayetteville, N. C., municipal airport have been started by Hawthorne Flying Service, according to Beverly E. Howard, president of Hawthorne aviation organizations.

The Fayetteville base is the fourth operation started by Hawthorne recently in the Carolinas. Others include Orangeburg, S. C.; Greensboro-High Point, N. C.; and Rocky Mount, N. C., as well as its municipal airport operation at Columbia, S. C., started in 1935.

Manager of the new operation is W. Sibley Low, a native of Spartanburg, S. C., who has had 15 years' flying experience, including two years of Army instruction at Hawthorne's Army contract school at Orangeburg.



ST. LOUIS FOREST PARK LANDING STRIP:

On 1946-47 temporary landing strip in midtown St. Louis, personal plane manufacturer's pilots loaded new models and proved ships last week to demonstrate utility of airports. Above: Piper 4-Blade Prop.

ambulance plane, designed for post-war conversion as four-place personal plane, makes landing on strip in Forest Park. In foreground, new Avian side-by-side plane, and Piper Crusier.

Wright Asks Post-War Research on Personal Aircraft

A trend toward increased federal recognition of personal aviation, which until recently has been a "stepchild" of CAA and CAB, has become apparent within the last few weeks, and is growing stronger.

Major factor in the changed attitude has been the progress of the Airplane of the Future, a project of Administrator E. P. Wright of CAA, although William A. M. Burton, Assistant Secretary of Commerce, and L. Webb Page, CAB chairman, also have indicated a more positive stand favoring non-scheduled aviation.

Latest indication of the trend's strength is a statement by Administrator Wright that CAA should take a more active part in fostering technical development of better personal aircraft, and that funds should be made available for this purpose as a pilot-war project. Pointing to a need for technical advancement of aircraft providing that given to military aircraft by the National Advisory Committee for Aeronautics and the military and naval technical engineers, the administrator emphasizes that further development of the personal plane is vital and necessary to provide the utility required for large public acceptance. He recalls that the Civil Aeronautics Act of 1930 specifically charges CAA with "encouraging and fostering development of civil aviation and air commerce in the United States and abroad."

Wright anticipates a total licensed field of 600,000 personal planes 10 years after 1945, providing an annual market for 175,000 planes, or a business for manufacturers amounting to \$300,000,000 a year, about four times what is expected to exist for the transport plane manufacturer.

The administrator outlines the following four-point policy for

U. S. civil aviation and the federal government in the immediate post-war period:

1. Fundamental facilities necessary for expansion of air transport (a) an adequate and efficient system of communication (b) aerodromes (c) modernized and expanded survey facilities.

2. Fundamental facilities aiding in development of private flying (a) a large number of small airports conveniently located to population centers both in rural and urban areas (b) stimulation of the development of improved aircraft types (c) government assisted flight training.

3. Steps to make our youth air-minded: (a) provision of technical aviation information to educational institutions (b) encouraging flight experience in high schools and flight training in colleges.

4. Steps to enable the United States to take its proper place in international aviation: (a) by representation of the United States in foreign aviation agencies; (b) by training and informing foreigners in American aviation techniques (c) by assisting our industry in expansion abroad.

Wright recalls that efforts of the federal government to develop a regular helicopter date back to 1910, although there has been little development effort in recent history. As a result, at least partly, of CAA efforts, the private plane production increased from only two planes in 1925, to 436 in 1930, and to 4,435 in 1940.

Encouragement of personal aviation is essential, he declares, not only from the standpoint of providing an important new industry, but also to develop a large backlog of young American pilots, experienced in the air, and a healthy aviation industry, both of which are essential of national defense.

Briefing

For Private Flyers and Non-Scheduled Aviation.

By ALEXANDER MURRELY

Prospective distributors and dealers of personal planes, and of course, the potential customers, too, are getting a glimpse this year for the appearance of some post-war planes on the market, as a result of a few appetite-whetting peeks that manufacturers permitted, and the promises of more interesting planes to come which were heard at the recent NATA-ADMA meeting. New plane news gleaned in St. Louis includes:

► **Piper**—Gigafast was reaction of prospective dealers in pictures of an experimental two-place Piper twin tailfin pusher plane. Numerical operations urged Piper to push through development of the plane, as four-place ship, predicting enthusiastic public reception. Currently, the experimental model's flight characteristics are not fully satisfactory, but are expected to be much improved by redesign of the cabin. Experimental plane has 158 hp engine, retractable landing gear, is credited with cruising speed of little over 150 mph.

► **"Skycycle"**—Another radical new Piper design, the one-place Skycycle, with 40 hp engine, probably will be a leading contender for the lowest priced personal plane. Designed mainly as an airport "runabout," the plane may sell for as low as \$775, if it goes into mass

production. Skycycle has only 20 foot wingspan, carries 14 gallons of fuel, has fuselage made of plastic with aluminum rear section. Plane was designed to use plastic P-35 wingspan, made by Piper, as part of fuselage. It will cruise at over 90 mph, has 115 mph top speed.

► **Republic**—Despite the fact that Republic wasn't able to get its amphibian out to St. Louis because the plane was weathered in at Fairbury, Pa., the Farmingdale delegation at St. Louis found favorable reaction from operators, and went home with cash deposits for a first year output of 2,400 planes. The amphibian finally reached Indianapolis, then turned back to Washington for a show to Army officials and a return to home base.

► **Cessna**—Cecil Cessna has definite knowledge of the time when it may resume civilian plane production, it does not intend to manufacture its post-war models, but is continuing development work. Reports indicate a line of several all-metal planes, including a two-place ship.

► **Family Planes**—Only two entries in the family plane competition are on actual appearance, Taylorcraft's four-place plane, and Stinson's "three-to-four" place Voyager, both powered with 152 hp engines. A third 135 hp new plane shown was the Piper L-4X designed for liaison and ambulance use for the Army, but expected to be readily convertible to a four-place family plane. Both Piper and Cessna are now at work on low

wing four-place planes. Aeroacra's is expected to be flown by early spring, will have a 160 hp engine.

► **Two Controls**—Several manufacturers are reported to be entering the two-control plane field, particularly as licensees of Engineering Research Corp., the Broomfield maker. Aeroacra showed pictures of a twin-tail, tricycle gear, low-wing plane which is expected to be its first two-control plane. And while no other definite announcements were heard, a number of other manufacturers are seriously studying the adaptation of two-control to their products, because of the simplicity of operation for the club-flyer who will provide instructor's main market.

► **Rocket 135**—The Johnson Rocket 135 three-place high performance lightplane was scheduled to make its first public flight last week at Ft. Worth, and is due to start on a tour of demonstration in January. ► **Other Taylorcraft Models**—Besides its four-place family plane, Taylorcraft announced a low-cost two-place all metal plane, Model 13, and a three-two-place Model B-12-B with redesigned cabin. Price quoted on the four-place was around \$4,000, with no questions on the other two planes.

► **Loading Strip Demonstration**—Despite unsteady bad weather throughout the convention week, visibility improved sufficiently for a brief demonstration of the Forest Park landing strip, in which a number of the new planes participated. Planes in the demonstration included Taylorcraft's four-place and deluxe two-place, the Piper L-4X and two Piper Crusiers, Aeroacra's new tandem and side-by-side two-place planes, the new Stinson 135, two Ecoupeps, and a few older planes. All were piloted by crack pilots with commercial ratings, which is partial explanation of the fact that none of the planes used more than half the 1,500-foot strip for landing or takeoff, and most of them used much less.

► **Display Room**—One of the main thoroughfares of St. Louis will have a personal plane showroom fronting on it, as soon as the planners can get building materials for the \$75,000 project. Operated on Kingshighway, in connection with the St. Charles Airport, by E. H. Wooster and Robert A. Baudendahl, the showroom will display complete planes in its windows, and will also carry a parts department to service the planes.

They wouldn't fly without them...



A pilot on the India-China ran has an ancient fat Buddha attached to his control panel to help him "over the hump."

A bright chiflon scarf is part of the flying equipment of a certain fighter pilot. It belonged to his best girl—but now it's his "insurance."



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A navigator always carried with him a captured log diary. He believed it contained telephone numbers and addresses of Tokio bellies—until he discovered it was a field ration list.

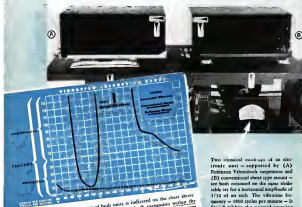


JOHNSON ROCKET READY FOR DEBUT:

First photo of Johnson Rocket, 135 hp three-place plane, of Ft. Worth plant, at plane prepared for recent public demonstration before spectators at Maxfield Field. Plane has unusually heavy wing-loading for personal plane class, 15.4 pounds per square foot. Aerodynamic properties, retractable tricycle gear with wide 26" tread and range of 450 miles at cruising speed of 155 mph, are other assumed features. Rocket 135 has 20 foot 10 inch wingspan, is 21 feet 6 inches long, will land at 25 mph, and has initial rate of climb of 2,600 feet per minute. Estimated delivery price is \$5,000 with full equipment.

Do you really get the BEST in Vibration Control?

Here is proof of the performance of the new Robinson Vibroshock⁺ suspension, using the exclusive double neutral axis principle as compared with a conventional type shock mount formerly used for the same equipment.



The complete picture of performance of both units is indicated on the chart above. Note the smooth performance of the Robusnik Vibration suspension system. The entire operating range of speeds is in comparison that the more expensive equipment provides superior ranges of speeds. It is apparent that the more expensive equipment is robust. Does not require protection from vibration and shock. In fact, conventional type mounts often survive vibration 100% or more.

Robinson engineers build the only complete, fully engineered suspension guaranteed to absorb over 90% of all vibration throughout the entire aircraft operating range. This is an efficiency rating far beyond accepted standards, and it enables possible performance and reliability previously unobtainable for electronic equipment. Our services are available to aircraft, radio, and electronic manufacturers and users.

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THE AIR WAR

COMMENTARY

U. S. Gains on Leyte Consolidated For Next Air Blow Against Japs

Full scale move against northern Philippines possible, spear headed by aviation based on newly recovered territory.

Despite the painfully slow clean-up on Leyte, occasioned partly by the abnormally heavy rainfall (with its sometimes wind, sleet and hail), the islands in the Visayan group (west of Leyte) especially Negros Island, and from the airfields around Davao, southern Mindanao,

and partly by the frustrated efforts of the day to send reinforcements for a costly delaying action, the situation appears to be well in hand. In our meeting most of Leyte Island (total area about 10,000 square miles, 3,110 square miles), we have liberated some million and a half Filipinos and have gained possession of strategic territory in the heart of the Philippines, from which Manila can be isolated and the Japanese can be dominated. A full-scale move against the northern Philippines, with landings at various points and with invaluable aid from the lines from organized guerrilla Filipino forces, appears very possibly in the immediate near future.

Progress on Leyte The Japanese had developed a large number of airstrips on Leyte Island, most of them clustered in the southern part of the Valley along the Cebu-Rio Grande Road. The airstrips were on the east coast. The best of them were at Dulag itself, San Pablo, Burauen and Daru, with several other emergency air strips. The best airstrip on the island, however, was at Tacloban, where, across a small bay from Tacloban, capital and main port (260,000 pop.) Tacloban Field was built as a commercial airport, with two all-weather strips, one over a mile long. All the Japanese, and the American bands, and the 10th

Lightable engines (headed by Brig. Gen. L. J. Svedrup) have improved them and added new strips. The only important airfield on Leyte still in enemy hands is at Valencia, about seven miles north of Ormoc, and this may be changed to a base for the 1st Marine Corps in point. The main jet air effort is coming from his many well stocked airbases on Luzon.

were added to the day fighter and fighter-bomber strength. As other ships were secured and improved, A-26 light bombers and then B-25 Mitchells were flown in and stopped up the air punch of the FFAAF. The record of the Task Force against Jap convoys has been spectacular. Finally, when the big B-29s become operational, substantial loads began to be dropped on the airfields of the neighboring islands recently, including heavy attacks on Lucon.

As told by Carriers and Marines, Carrier-based aircraft had been assigned the role of supporting air operations in the Philippines and the Marianas. After the stunning surprise crippling Second Battle of the Philippines, carrier planes of Admiral Nimitz's Fifth Fleet launched a series of heavy attacks on convoys, enemy shipping, aircraft and other installations on Luzon and elsewhere. The attacks were so effective that the Japanese were forced to evacuate Manila Bay area. The Fifth Marines have also contributed greatly to the air picture with their repeated attacks with Corsairs (the Navy's equivalent of the Marine's F4U) for nearly two years now, and their highly effective work with PV-1 (Stear's Ventura) night fighters. The Navy's carrier-based aircraft give point to a recent masterpiece of Japanese Dornier radar underestimation: "Frankly, the new situation in the Philippines is not due to the Japanese," said a NATOPS

NATURALIZATION



21ST BOMBER CHIEFS

Shown at a new Boeing E-28 Superfortress base in the Marianas are, left to right, Brig. Gen. Emmett O'Donnell, Jr., commanding general of a wing of the new 21st Bomber Command, Lt. Gen. Millard F. Harmon, commanding general of the AAF in the Pacific Ocean area and deputy commander of the 20th Air Force, and Brig. Gen. Haywood S. Hummel, Jr., commanding general of the 27th Bomber Command.

PERSONNEL



O. Theodor Larson (photo), vice-president and general manager of Trans-Canada Airlines, will return to United Air Lines the first of the year as assistant to **A. A. Hurler**, vice-president of operations. Larson had joined United in 1938 as meteorologist at Omaha and was assistant superintendent of dispatch at the time he left the company in 1937 to go with TCA. At one time Larson was associated with the always weather division of the U. S. Weather Bureau at Detroit and Chicago.

E. Russell Trotman, former aviation editor of the Springfield, Mass., *Register*, has been appointed publicity representative of Hamilton Standard Propeller Division, of United Aircraft Corp., Hartford, Conn.

John B. Mills has been appointed assistant public relations manager of the Propeller Division of Curtiss-Wright Corp. He has been public relations manager at the Indianapolis plant and will be succeeded there by **Jack Stark**. Mills formerly was with United Press and served in their Indiana manager. Stark, a member of the Aviation Writers' Association, served as assistant to the publicity director of Curtiss-Wright Corp. in New York.

Promotion of three traffic men of United Air Lines to new positions in the service area has been announced. **S. Q. Halberg**, district



Kellie Morrey Halberg

traffic manager at Salt Lake City, has been appointed assistant to Warren Burke, United's district manager at San Francisco. **Sue B. Kellie**, formerly assistant district traffic manager at Los Angeles, replaces Halberg at Salt Lake City. **Carl Morrey** becomes assistant district traffic manager at San Angeles.

O. R. Wilson has been named New York industrial manager for Brown Instrument Co. of Minneapolis-Honeywell Regulator Co. Wilson has been with the Brown company for 24 years. **J. A. Robinson** becomes industrial manager of the Chicago branch of Brown.

MacDonald Bryna, director of public information for National Aeronautics Inc., was re-elected president of the Florida Publicity Association, Inc. This will mark his third year in office. The Association is helping provide modern terminals in Tampa and St. Petersburg, contemplating the first commercial flight made by Tony Juan in 1934.



Percy Brown, whose new position as director of press for Air Transport Association of America, was announced in *AVIATION NEWS*, Nov. 22, was formerly director of press for the New York World's Fair. He resigned from the news staff of the New York Times to join ATA. Brown will maintain headquarters in the Washington office of the Association.

D. W. Pennington has been named reproduction supervisor and editor of *Aviation*, house organ for Hughes Aircraft Co. He succeeds **Erlich Hahn**, who resigned as editor to re-enter the publishing business for himself.

D. C. Evans, assistant to the operations manager of Northwest Airlines, has been appointed superintendent of stations for the company's western routes between Chicago and Billings. **Monte B. Anderson**, now an special assignment for the company.

John C. Strach, formerly associated with the Research Laboratories division of General Motors Corp., Detroit, has been appointed research engineer of American Foundry Equipment Co., Milwaukee. **Earl Strach** has worked closely with aircraft transmission and gear development.

Ernest A. Foster, for the past three years Los Angeles bureau manager for United Press, has resigned to become public relations co-ordinator at Lockheed Aircraft Corp., Burbank.



Arthur Nait

Arthur Nait, who supervised development of the engine which powers the B-29, has just been named director of the new aircraft engineering division of the Packard Motor Car Co. He will have office in Toledo, site of new laboratories to develop advanced aircraft engines. Nait was vice-president of engineering for Wright Aeronautical Corp., a position he recently resigned.

G. Richard Young has been named director of purchases for the Westborough Co., Cleveland, an successor to Charles T. Craig, recently appointed manager of the company's Chicago sales office and territory.

N. R. Fay, newly elected president of the Air Traffic Conference of America, is assistant traffic manager for United Air Lines. Fay was with Tidewater Oil Co. before entering Boeing School of Aeronautics. He joined United in 1935 and has been assistant traffic manager since 1940.

Edward R. Hara has been named to the research and development staff of the Goodyear Aircraft Corp.



Before joining Goodyear, Hara was for four years with Aeroquip Aircraft Corp., where he was director of engineering and research, and for seven years prior to that he was associated with Piper Aircraft Corp.

Levin W. Douglas has been elected a member of the board of directors of General Motors Corp., Douglas is president of Mutual Life Insurance Co., New York. He was director of the budget for a year and a half.

Col. Frederick W. Castle, 25, has been promoted to the rank of lieutenant general. A graduate of West Point in 1930, he was one of the



Push the limit with the B-29

Destroyer

Look up from the floor of one of Boeing's mainwork plants in the gleaming wing sections of B-29 Superfortresses—long lines of them, held edge-wise in rows by jacks—likely, you think of things being built in that way. There is the flowing curve of the skin and frame. The breath-taking heights. The sense of stretch, clean lines.

Even when you study them more closely, the B-29s are a ship ripers. For the wing skin of one of these great bombers is no flimsy sheet. Its reinforced plates are of tough aluminum alloy, nearly as thick as the steel hull of a destroyer.

Something of immense importance has happened to airplanes in the last few crowded years. They are no longer fragile.

Boeing engineers were among the first to realize great ships of the air, many tons in weight. They passed modern transport design with the 3-motor bomber Boeing 347, which pointed the way for all subsequent air liners. They made history with the B-17 Flying Fortress, first and most famous of the fighting four-engine bombers—the last-union Stinson-like which suggested high-speed travel—and the super-sweeping Boeing Clipper.

Now they have produced a still greater aircraft—the B-29 Superfortress—nightmare of the world's battle planes. No other airplane has been assigned so important a responsibility in the conduct of the war. In the size, speed, capacity and superb flying qualities of this great bomber, you can glimpse something of America's future in the air.

When the war is over, the ingenuity, experience and skill in engineering and manufacturing that have given Boeing heavy aircraft leadership will now more be devoted to products of peace. You can know of any such product... if it's "Built by Boeing" it's bound to be good.

DESIGNERS OF THE NEW B-29 SUPERFORTRESS • THE FLIGHT FORWARDS
THE HARVEST THUNDER • THE STRATOLINER • THE AMERICAN CLIPPER

BOEING

GOODYEAR AIRCRAFT PRODUCTION REPORT

CONTRACTS: 7692B-LL91367 GRUMMAN TBF-1 (Avenger) 3,000 Sets, Empennages

DESIGN CONTRACT RECEIVED: SEPTEMBER, 1940
FIRST PRODUCTION UNIT DELIVERED: OCTOBER, 1941
100% PRODUCTION UNIT DELIVERED: MAY, 1942
CONTRACTS COMPLETED: NOVEMBER, 1942

Remarks: Production history of these contracts includes detailed structural design prior to tooling and manufacture of entire empennage. Battle history of these carrier-based Navy fighters embraces epic achievements at Midway and Coral Sea; fighting testimony of sound construction and of Goodyear Aircraft Corporation's ability to deliver mass production of important components on rapid schedule.

Goodyear is building components for various different Army-Navy types of aircraft, including complex Carrier fighters and bombers.

HOW GOODYEAR AIRCRAFT CORPORATION SERVES THE

1. By constructing components to manufacturers' specifications.
2. By designing parts for all types of airplanes.
3. By re-engineering parts for mass production.
4. By building complete airplanes and airships.

AVIATION INDUSTRY

5. By extending facilities of Goodyear research laboratories to aid the solution of any design or engineering problem.



Akron, Ohio

Eastfield Park, Arizona

WAR BONDS BUY THE WINGS OF VICTORY

first chief officers, then a captain, to 20 executives with Gen. Ira Eaker to form the Eighth Bombardment Command early in 1945.

M. H. Whittingham, formerly vice-president in charge of engineering of the Norge and Detroit Gear Aircraft Parts Division, has been ap-



Whittingham Reidel

pointed vice-president and manager of the unit. **Leo H. Reidel**, chief engineer for Norge, has been promoted to director of Norge engineering. At the same time it was announced that the name of the Detroit Gear Aircraft Parts Division will be changed to Detroit Gear Division.

Raymond E. Montgomery (photo), formerly assistant to the special representative for Pan American



Grace Airways, Inc., in Miami, has been appointed to succeed **Richard H. Hagelston**, special representative there, who recently retired.

Francis Montgomery is the traffic department of United Air Lines. Prior to that he was affiliated with several investment houses.

Gerald B. Morris has joined the public relations staff of Fairchild



Corporation. Morris is the publicity manager for the past two years. Morris has handled publicity for Hamilton Standard, a division of United Aircraft Corp. Previously he spent many years in the public relations and publishing business with his own organization in New York City, and later with Public Relations, Inc., advertising agency.

Col. Vernon E. Bruce, chief of staff for Major Gen. Russell G. Brown, who led the first B-23 raid on Tokyo, is returning in action after the fourth Superfortress raid on the Japanese homeland.

Moll Deaning has been named director of sales of the Panther Divi-

sion of E. I. duPont de Nemours and Co., succeeding the late W. Franklin Donahoe.

Josephine Cochran has been elected to the board of directors of Northeast Airlines, Inc. She succeeds **Robert E. Bradshaw**, who resigned from the board on becoming assistant governor-elect of Massachusetts. Miss Cochran holds numerous world air records and has been serving with the Army Air Forces as director of Women's Policy and head of the WASP's. In private life she is Mrs. Philip B. O'Brien.



R. H. Spencer, who designed the prototype from which the Republic Thunderbolt Amphibian has been evolved, is an assistant chief commercial project engineer at Republic Aviation's Farmingdale, L. I., plant. Spencer designed, constructed and flew a biplane glider in 1913 and the same year designed and built two flying boats and a tractor land biplane.

John F. Skelcher, Jr., has been appointed assistant chief engineer of the Niagara Falls division of Bell Aircraft Corp. Skelcher has been with Bell since 1934, having been employed by Consolidated prior to that time. He was project engineer on the Airacuda, Bell's first fighter plane, did some design work on the Airacobra and was assistant chief project engineer on the development of the P-63 Kingcobra.

George C. Ford has succeeded W. B. Clark as works manager of Consolidated Value Aircraft Corp.'s Valley Forge Division. He has been chief of industrial relations at Valley Forge for the past year and a half. The Valley plant currently is producing major section units for the B-23 and B-24 bombers, the PBY Navy patrol bomber, and Lockheed P-38.



Curry Corp., Syracuse, N. Y., announces that **Allen E. Sawyer** has rejoined the company as staff assistant to the director of advertising and sales promotion. Mr. Sawyer has been named assistant director of advertising and sales promotion.

TELLING THE WORLD

• A new monthly publication, *The Air Force Woman*, bulletin of the National Association of Air Force Women, has made its initial appearance. Mrs. (Harold) W. Green is director of public relations and Mrs. A. D. Thorndike is editor. Amy wife, mother, widow, daughter or sister of an AAF man who is, or ever was, on active duty or any woman member of the Army attached to AAF may join the organization.

• Delta Air Lines, Atlanta, is distinguished by mail and on letter a four-color, 20-page booklet entitled, "Welcome to Southern Skies." Designed for air travelers, especially those flying for the first time, it traces Delta's 20-year history, pictures the territory it serves, describes its war work and briefly outlines post-war plans.

• Patricia O'Malley, public relations council for Transcontinental and Western Air, Inc., has published a new book entitled "Airline Girls."

• The Frank M. Hawks Memorial Award was presented to Ray W. Howard, president of Scripps-Haward newspapers. The contributions of the Scripps-Haward newspapers to the development of commercial aviation in 1940. A motion picture entitled *Tornado* is a box, concerning the gas turbine, has been released by Allyn Chalmers Manufacturing Co. The film is being lent to any industrial or engineering group. It is a 16 mm film.

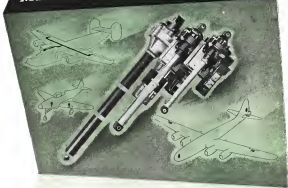
Answers to hundreds of questions on aviation and related subjects are presented in a new booklet, *At Home Afloat*, just issued by the advertising department of Pan American Airways. Copies are being made available through Pan American district sales offices and travel agents.

• Republic Aviation has transferred its account to Albert Woodley Co., New York.

• The United Wobbling and Manufacturing Co., Hartford, maker of aluminum parts for aircraft, has appointed S. Duane Lynn, Inc. W. D. Lynn will be account executive to direct its advertising. Newspapers, magazines and trade papers will be used.

• Plans for a new Northwest Airlines advertising campaign are now being made by Newell-Summit Co. Paul E. Newman is account executive.

Muscles for America's Aircraft



The engine housing opens, is open and closes, to raise and lower flaps, ailerons and muscles. They must be correct, smooth and precise in their action. They must be strong and dependable.

Now you see much muscles. They are Lear Actuators.

These Actuators are powerful, yet operate on a plane's limited electric current. They're tough and strong, yet tip the scales.

In ounces or bulky pounds. They can be started and stopped with a simple switch or can be completely automatic.

Devices such as these, tried and proved under the extreme stresses of war, will prove equally important on the great new airplanes which live ahead in peace.

Learn engineers stand ready to contribute their experience with the use of such controls. Feel free to call upon them whenever a control or actuating problem arises.

PLANTS: Peapack, Ohio, and Grand Rapids, Michigan
BRANCHES: New York, Los Angeles, Chicago, Detroit, Cleveland



Formerly Lear Air, Inc.

PAA Financing Presents Unusual Underwriting Agreement

Investment trust to furnish up to \$25,000,000 capitalization if airline's stockholders fail to subscribe to new shares, taking option warrants instead of cash.

The proposed financing planned by Pan American Airways and designed to raise upwards of \$25 million during 1944, presents an unusual underwriting arrangement with Atlas Corp.—venture capital investment trust.

Following stockholder approval, the common stock will be split two for one and rights offered to purchase additional shares. The plan, approved by directors, will give stockholders the right, after the split-up, to purchase one additional share for each share held, plus an option warrant for the purchase of another share at \$12 per share good for two and one-half years.

Increases Capitalization—The initial effect of this split would increase outstanding common stock from 1,995,381 to 3,990,762 shares. The succeeding step—stockholder subscription, scheduled for June 1944, should increase the capitalization to \$49,815,200 and return the company a sum of \$25,019,600 in additional funds. This is promised on present markets with current prices of around \$26 per share prevailing. This would mean a price of around \$28 per share for the split-up stock.

By subscribing to the additional shares, each stockholder would receive a warrant for each two split-up shares held, entitling for purchase of one share of new stock during a two-and-one-half-year period. If the offering price should be less than \$13.50 or the equivalent of \$27 for the present stock, the price at which the warrant would be exercised would be reduced to \$16.50 a share. In this event, the company would receive \$26,000,000 in immediate new funds.

Further, on the ultimate exercise of the warrants at the end of the two-and-one-half-year period, additional gross proceeds to be received by Pan American could range from a minimum of \$23,355,800 (at \$16.90 per share) to a maximum of \$25,271,600 (at \$13 per share). In this process, total

shares outstanding would then aggregate 7,973,046.

Underwrites by Atlas—Atlas Corp. has assumed an underwriting commitment of \$25,000,000. In other words, should Pan American stockholders fail to elect to subscribe to the new shares, Atlas Corp. will do so to the extent of its indicated obligation. In return, Atlas Corp. has declined a cash fee but instead has elected to accept option warrants. Should the split-up shares sell for less than \$13, Atlas would be entitled to 600,000 warrants, if above \$16, to 400,000. Atlas has agreed further to make a secondary distribution of any stock it may acquire but plans to retain a maximum of 300,000 shares.

There are a number of interesting elements surrounding this proposed financing. The success of this plan is entirely wrapped up in the company's future prospects. Should Pan American continue to prosper, it is obvious that its equity will be in demand by investors. The present stockholder is faced with the choice and in order to protect existing equity positions is almost forced to subscribe to the new shares. However, it is true that the forthcoming "rights" can be sold for immediate pre-funding.

Cash Investment Unlikely—It is evident that Atlas Corp. is confident of Pan American's future by accepting options. Atlas will not be called on to invest any cash whatsoever if the new shares are subscribed to by the stockholders. The investment trust will stand by and is prepared to assure Pan American of \$25,000,000 in case stockholders turn their heads down as the new shares. In any event, Atlas will receive a substantial number of warrants and will thus have a material position in the airline's future.

Investment observers were quick to reflect that it is unlikely that Atlas will be called upon to supply

any cash. The immediate market response greeting the financing plan seemed to augur a fair degree of success. Nevertheless, having a call on Pan American stock over a two and one-half year period, Atlas stands to profit handsomely in the airline's success.

Atlas' General Policy—Atlas Corp.'s "general policy has been to invest in 'so-called special situations' companies which may seem unattractive but are basically and conservatively sound, to the end that an ultimate profit may be realized." Also, Atlas takes an active part in most of its special and controlled situations. How far the trust will go in aiding the management of Pan American remains unclear.

The largest stockholder in Pan American remains Aviation Corp. which holds 183,477 shares or about 9.2 percent of the total present issue. The same company also owns about 26 percent of the existing common stock of American Airlines.

Other general investment trusts have some substantial common needs in Pan American and no doubt will be important factors in the proposed financing. The more prominent holdings and the number of shares owned are: Blue Ridge and Lehigh Corp., 14,000 each, U. S. & Foreign Securities and U. S. & International Securities, 10,000 each, National Aviation, 3,500, Consolidated Investment Trust, 6,500, and National Bond and Share 4,660.

Holds Northeast Stock—Atlas Corp. also is vitally interested in Northeast Airlines and owns 90,000 shares of that company which has promised further assistance if needed. Other Atlas aviation investments include 4,000 shares of All American Aviation preferred and 500 American Express Airlines. Atlas Corp. is dominated by Playe Odium, who has been outstandingly successful in financing operations. One of the directors of Atlas is Samuel Sengstacke, president of United Fruit and whose company has filed for air routes in the Latin American area.

It is noteworthy that the Pan American capitalization pressure to become by far the largest among the air carriers and with easily approach that of many railroads. In addition to the 7,973,046 common shares ultimately to be outstanding, further funds to be raised by the airline will necessitate preferred stock offerings, equipment trusts or similar instruments.



UP...UP...UP into the sky!

DOWN...DOWN...DOWN to the ground again... just like the ride you take on your office elevator. That's the job Federal Aerial Navigation Equipment is doing in controlling air-traffic.

Federal traffic control equipment guides the plane from the minute it leaves the runway, right into the skies, heads it first and sure for its destination and guides it back to earth... all with speed and accuracy.

And looking forward to the greater amount of passenger and freight traffic that will take to the air tomorrow, Federal has developed even better sky traffic control equipment.

Here in one compact research and manufacturing organization is centered the know-how to design and manufacture complete air-traffic control systems for every need. Now is the time to have Federal help you plan for the air age of the future.



Federal Telephone and Radio Corporation



Newark 1,
New Jersey



"These are a few we can talk about now"

Today, the eight Jack & Heintz plants are turning out 36 different war products—in ascending streams for the finest aircraft in the world. Our newest assignments are military secrets, but jobs we can talk about now are the instruments, auto pilots, generators, starters, motors and bearings that have gone to war by the tens of thousands.

This equipment is used in pursuit planes, bombers, transports, patrol boats, trainers, gliders . . . and even blimps. Its performance has been such that the Jack & Heintz nameplate is now a welcome sign of dependability to the men who gamble their lives on it daily in every corner of the globe.

From the first, Jack & Heintz has led the

way in reducing weight, boosting output and increasing service life on every job undertaken. Engineering like this has helped keep America's air fleet first in the war . . . it will be equally effective in holding that place in peace.

Watch Jack & Heintz for new things in aircraft

Jack & Heintz, Inc., Cleveland, Ohio, manufacturers of Aircraft Engine Starters, Generators, Gyro Pilots, Gyro Flight Instruments, Magnets, Motors.



Buy More War Bonds and Stamps

Production Difficulties Tax Plants To Meet B-29, A-26, C-54 Schedules

Design changes and production control difficulties, in addition to labor shortages, are making attainment of schedules for the Boeing B-29 Superfortress, Douglas A-26 Invader and C-54 Skymaster difficult problems.

Engine Shortage Likely — WPB evidently is looking ahead to a short supply of the Wright R-3330 engine used in powering the Superfortress. There is at present a cumulative surplus of the engine, but Mr. Bartscheller pointed out that schedules are close to requirements and that upgrading of the B-23

Boeing Wichita on Schedule — Boasting at Wichita has been on or ahead of schedule on B-29s since May—but schedules, WPB warns, may be increased. That plant should attain its peak rate under present schedules beginning in January. Boeing at Seattle has the "toughest job" of any B-29 plant, and to meet its schedule must have

Two or three months of delay are expected in the Douglas A-38 bomber program because of design changes. Despite the changes, WPG is seeking to link the problems of quadrupling production by July. The Douglas Long Beach, Calif., plant was only five planes behind schedule in November and the Tulsa branch was on schedule, although it is a month behind the Long Beach unit in its design changes.

Another lagging production program, insofar as schedule is concerned, has been that of the Martin Marietta. But WPA admits that "the new schedule is realistic in terms of manpower" after revision early in December. WPA also cautions that additional tools would have been required to bring the Marietta production up to the level set in the old schedule. Tapering work on B-56 Marietta production is expected to ease the Martin Marietta situation at Baltimore.

Discloses that a "very large number" of planes powered by jet propulsion and gas turbine units are now being developed by Army and Navy.

He mentioned several new types of aircraft that the Army and Navy are developing, involving the application of gas turbines and jet propulsion units. Dr. Lewis commented that there is "a very large number of these types." He showed the committee a number of design arrangements now undergoing study and experimentation.

Dr. Lewis mentioned to the committee the F4U Vought in this connection as well as another Navy airplane, otherwise unidentified, with two jet propulsion units. He called attention to a third which was a conventional engine in the nose and a jet propulsion unit in the tail. In answer to a question, he said all these have been built during the past year. He mentioned, too, the F15C, identified only as a "Curtiss job."

He mentioned the YF-30—The Hell Arrangement—which he said was now in production and service to the United States, another type

It should not be overlooked that, in addition to the work being done by NACA and other agencies, there is scarcely an aircraft engine manufacturer or airplane manufacturer who is not investigating with varying degrees of intensity the possibilities of gas turbine and jet propulsion power. The possibilities are almost without bound.

In addition, the Admiral testified, the Navy had need for financing the dual rotation propeller project which is also a United Aircraft activity for Hamilton Standard Propellers and for which the estimate is \$3,686,000.—C. S. M.

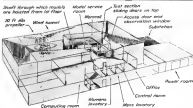
The United Kingdom alone built 102,146 airplanes, according to a White Paper recently issued by the British, summing up five years of war.

Operating under blackout conditions and frequently under attack, the aircraft plants produced 10,518 heavy bombers, and fighters are now being turned out at the rate of 945 a month.

Total American unit production in 1962, 1963 and 1964, excluding November, is 216,743, roughly the production since Pearl Harbor. With the addition of the 19,290 produced in 1961, the total is 236,035. For 1964, through November, the industry has produced 63,926

A - FUEL TANK
B - FUEL PUMP
C - FUEL LINES
D - FUEL FILTER
E - FUEL VALVE
F - FUEL GAUGE
G - FUEL PRESSURE GAUGE

Details of Bell's Jet Propulsion Plans: Above sketch, just released, shows how three power units fit snugly beneath the wings and against the fuselage of Bell's P-53 Avrocopter.



The phantom drawing of Consolidated Paper's new wind tunnel shows the general arrangement of the laboratory. The 2250 hp motor will force air through the tunnel at 350 mph. Models with 10-foot wing spans can be tested. Installation of the apparatus used in research work will be completed by the end of 1945. Cost is estimated at \$124,000.

B-29 Device Utilizes Maximum Firepower

All gunners but man in tall can control more than one turret at a time in case of need to concentrate defense from any angle.

Any gunner except the tail gunner on Boeing's B-29 Superfortress, can assume control of more than one of the bomber's five turrets at one time under the revolutionary gunfire-control system, developed by the Armament Laboratory of the Air Service Technical Command and General Electric in cooperation with Boeing's Engineering Division.

Individual B-29 gunners have primary control of certain turrets and secondary control of others. A gunner with primary control of a turret has first call on its services, which he can relinquish to gunners with secondary control. An intricate but easy-to-operate signal system permits this exchange of control.

Maximum Firepower Utilization.—In event of concentrated attack on one portion of a B-29, the gunner whose vision covers the point of attack not only can fire his own turret at the enemy, but can borrow a second turret to double his firepower. This control system re-

sults in the greatest utilization of the bomber's firepower. The system of fire control is not new to warships, but the Superfortress is the first airplane on which it has been installed.

Through this central control system, many combinations of turret control are possible. The B-29 has upper and lower forward turrets, upper and lower rear turrets and a tail turret. They are so arranged to cover any possible angle of attack.

The bombardier probably has a wider range of vision than any other gunner. He can operate either of two turrets separately or he can direct the fire of both antiaircraft. When he needs control of but one turret, he can pass control of the extra turret to another gunner. The same principle applies to other gunners stationed in separate compartments.

Ryan Builds Plants For Big Navy Contract

Ryan Aeronautical Co.'s \$1,381,000 building expansion program got under way last week to provide facilities needed for the company's \$60,000,000 Navy contract for fighter planes.

T. Claude Ryan, president, said a large sub-assembly manufac-

turing building, and an additional two-story office building are the two main units. Fighting plane assemblies are to be built in the new factory structure. From there they will go for installation and final assembly to the adjoining final assembly building constructed two years ago.

Yard Areas Increased.—Factory yard areas, used for outdoor production work, are to be increased by 82,584 square feet of new paving and a new surfaced parking lot of 502,880 square feet. It is to be provided for the 3,300 new workers needed.

One of the three Ryan School of Aeronautics buildings recently moved to the factory from its former location on Pacific Highway is being readied for use of the experimental manufacturing department and for flight operations. Two other buildings will be moved after completion of the east end of Lindbergh Field's new runway. Ryan's Lindbergh Field plant area ground leases now include 46 acres, eight of which were added recently to provide space for the three Ryan school buildings being moved from the opposite side of the airport.

Canadian Vickers Split into Two Units

Canadian Vickers Ltd., Montreal has been divided into two companies, one of which will continue to build ships to be known as Canadian Vickers Ltd. and the other, Canair Limited, to make aircraft exclusively.

The split came following discussions between the Canadian government and Canadian Vickers representatives. The government-owned plant of the company, where Catalina flying boats have been built and which is now producing Douglas DC-4 transports, forms the new Canair Ltd. It is at St. Laurent, near Montreal, and will be managed by Benjamin W. Franklin, who has been in charge of aircraft production for Canadian Vickers.

Announced By News.—Announcement of the transfer of the shipbuilding and aircraft operations into two companies was made by Ministers and Supply Minister C. D. Howe, at Ottawa.

His statement did not give any information of the eventual disposal of the government-owned aircraft plant to Canadian Vickers or whether Canair Ltd. will be a government-owned corporation.



*They give their lives
That others may live longer*



The two Eimac electron tubes illustrated are "guinea pigs" in the science behind the science of electronics! They are but two among many that live and die in the Eimac laboratories while undergoing a variety of grueling tests deliberately designed to wear them one sixth work provides performance data upon which you can depend and speeds the development of new electron vacuum tubes.

Perhaps nowhere else will you find so great an emphasis on testing and inspection as is practiced at Eimac. There are literally hundreds of individual tests and inspections to which every Eimac tube is subjected. Such rigid control along with painstaking care in fabrication has enabled Eimac to set performance standards difficult to equal...and to maintain these standards in tube after tube, year after year. That is an important fact to remember when you are selecting electronic equipment, because it's the electron vacuum tube that makes such equipment "tick". Hence your equipment can be no better than the vacuum tube it employs...Remember, too, that Eimac, being an exclusive manufacturer of electron vacuum tubes, is in a position to render unbiased help with your electronic equipment problems. A note on your company letterhead giving details will bring this assistance without cost or obligation.



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ELECTRONIC TELEVISION

Scrap four pages of brilliant, illustrated, covering fundamentals of Electronics and many of its most important uses. Write to Eimac, 955 San Mateo Ave., San Bruno, California, for your free copy. Your copy will be sent without cost or obligation. Available in English and Spanish Languages.

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TUBES

ETHEL-McCULLOUGH, INC., 955 San Mateo Ave., SAN BRUNO, CALIF.

PLANTS LOCATED AT SAN BRUNO CALIFORNIA AND DALLAS CITY TEXAS

Export Agents: FRAZER & HANSEN, 301 Clay Street, San Francisco, California, U.S.A.



Gun Control on Boeing's "Superfortress": An AAF sergeant is shown operating basic elements of the central gunnery control system on the B-29, demonstrated and made public for the first time in New York by AAF officers and General Electric Co. engineers before a conference of industrial leaders. All the gunner has to do is get the enemy plane in his sight and press the trigger. The complicated mathematical problem of accounting for speed of the enemy plane, its distance, gravity and pendulum are worked out at split-second tempo by electronic and mechanical units of the system.

TO FIGHT THERE AND BACK

In this war pilots often fight far over enemy territory, hundreds of miles from their base. So fighter planes need range as well as sting. ★ In such service the Allison engine has proved its merit. Its economy adds miles to every tankful. Its dependability keeps it in the fight, helps get both plane and pilot back from hazardous encounters.

In smoothness and response lessens pilot fatigue. ★ Qualities like these will continue in importance after the war's end. They will contribute to the comfort and safety of your fights in the days of great air transport to come.

POWERED BY ALLISON

P-51—Lightning
P-59—Mustang
P-40—Warhawk
A-26—Invader
P-51—Mustang
P-51—Mustang

More than 50,000 Allison engines have been built for the above planes of the U. S. Army Air Forces.

LIQUID-COOLED AIRCRAFT ENGINES

Allison

DIVISION OF

General Motors, Detroit



KEEP AMERICA STRONG
BUY MORE WAR BONDS

Every Landing Afternoon
GENERAL MOTORS SYMPHONY OF THE AIR—NBC Network

TRANSPORT

UAL Asks Board to Reconsider Award of Denver-L. A. Route

Patterson, president, charges CAB overlooked the entire public interest in reversing the examiner's recommendation for United and allocating route to Western Air Lines.

By DANIEL S. WENTZ II

United Air Lines' deep dissatisfaction with the Civil Aeronautics Board's decision in the Denver-Los Angeles case resulted last week in a petition for reconsideration and reargument of the Board's decision awarding the route to Western Air Lines. In addition, W. A. Patterson, United's president, in a letter to all employees of the line, charged the Board with making a wrong decision, and pledged himself to making every legal effort to obtain a reversal.

Patterson described the Nov. 11 decision as "a shock to all of us," reversing as it did the recommendation of Examiner Albert F. Belmont that the route be awarded to United. The Board, he said flatly, overlooked the entire public interest "in favor of the interests of one company and that one company controlled and dominated by one man with a relatively few stockholders."

Anomalous Position—Patterson's letter and the briefs submitted to the anomalous position in which United would find itself—cooperating with Western in the conduct of a two-carrier transcontinental operation, and competing with the same carrier between Los Angeles and San Francisco.

The effect of the route award to Western, of course, would be to relocate the interchange point at Denver instead of Salt Lake City. Equipment interchange formerly was accomplished by means of a CAB-approved agreement between the two carriers.

Clarified Position—United's brief leaves small doubt as to the company's position regarding a new agreement covering interchange of the four-engine equipment with which the trans-continental route will be operated. "We may as well tell the Board now that United Air Lines is not going to fly any Indian heads to New York City,"

said the attorneys. An Indian head is Western's insignia.

They further pointed out that if CAB had awarded the route to Western on the assumption that Western would be willing to undertake another interchange agreement, then the Board's assumption was unwarranted.

The brief, in general, presented a comprehensive critique of the Board's methods of preparing its opinions. Rather than accept or refute arguments presented by the opposing attorneys as a case, the Board's decisions are made on the basis of general principles whose validity has not been completely examined, United's attorneys claimed.

TWA Protests—United was not

Clews It Up

Oswald Ryan, member of the Civil Aeronautics Board, believes misapprehension of the distinction between CAB and CAA has caused "years confusion in the public mind than any other event within aviation history."

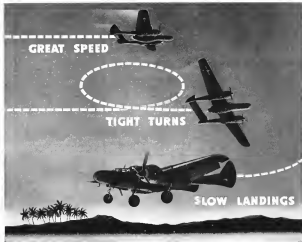
"The Civil Aeronautics Board," he explained in a recent speech, "is the legislative, judicial and regulatory agency for the administration of the powers delegated by the Civil Aeronautics Act of 1938; the Civil Aeronautics Administration is the executive agency charged with the enforcement, operating and promotional functions which have been assigned to it by the Civil Aeronautics Act. The Civil Aeronautics Authority is the collective overall name for these two agencies."

alone in protesting the decision. Transcontinental & Western Air filed a like request, asking in addition that the case be reheard. Should the award stand, TWA's position as a through transcontinental carrier would be seriously impaired. The Denver connection, they point



"FORWARD DOCKING" SEEN FOR POST-WAR:

A new method of loading for post-war planes was proposed to the SAE cargo meeting at Chicago by Jared S. Morse, Boeing Aircraft Co. engineer. Morse suggested that, with "forward docking," or naming planes into the terminal, as depicted in the picture above, 100-passenger post-war planes can be loaded in less time than a 50-passenger plane by conventional methods. Under his plan cargo and mail would be handled on the ground floor, while passengers were loaded by gangways from the second floor.



The big Northrop BLACK WIDOW combines all three —

It couldn't be done with orthodox designs and tail design. But the Army demanded—and got—the all-around performance in the light Northrop Black Widow.

Retractable slats and full-span flaps, designed and built by the Northrop group, are the secret of this first combination of tight turning ability and slow landing speed in a large, fast airplane. These revolutionary features have about the same milking value of the wing flaps for speed. On the big Black Widow built "on a date"—at no more than \$1 to \$2 M.P.H.

Vaid to a nightfighter, think what such reduced landing speeds mean to the precision passenger and cargo airplanes... extra safety... no stage only half as long as formerly believed necessary.

The Black Widow, with its fast fighter jet but a medium bomber low wing arrangement in combination design. They apply the Northrop group thinking and building skill that combine will continue to stand in the years ahead.

Northrop Aircraft, Inc., Northrop Field, Hawthorne Calif. Member Aircraft War Production Council, Inc.



CONVENTIONAL DESIGN: Tight turns demand "stiff" wings. Wing flaps and slats are large flaps. With both controls, the trailing edge of the wing, designers were forced to compromise on performance.



RETRACTABLE SLATS AND FLAPS: In the wing, the first in aircraft history, were created for the P-1 by the Northrop group, making possible a more efficient design and better use of the world's first full-span flap.

NORTHROP

Creators of the *Flying Wing* and the *Black Widow* P-81 Night Fighter

out, established a coast-to-coast route 46 miles shorter than TWA's present "shortest" route. Should the Western-United transcontinental system be operated, they claim, TWA would be subjected to a loss of revenue amounting to several million dollars yearly, and might be forced back into the "second" class of air carriers.

TWA also filed objections to the Board's award to American Airlines of the Tulsa-Oklahoma City-Houston out-of, which, TWA always claimed, is decidedly a short-cut American's flying time between Los Angeles and Chicago that it creates, in effect, another transcontinental route.

Such petitions for reconsideration will be acted on by the Board. Should its answer be affirmative, then the case might well enter a further period of litigation covering many months. Should it refuse reconsideration its stand would carry the case into Federal courts.

Report Shows 'Musts' For Non-Operators

CAB examiner's recommendations in Lakes-Florida case reveal why some Airlines, Virginia Central and South East were disqualified.

While Civil Aeronautics Board Examiner Rasmussen's report on the Great Lakes-Florida case is not particularly encouraging to non-operating applicants, it shows new light on factors likely to be viewed by the Board as disqualifying. The detailed analysis of the presentations of State Airlines, Virginia Central Airlines and South East Airlines probably will be useful to other applicants as an indication of stumbling blocks to be avoided.

While proof of convenience and necessity for a given route usually is the chief turning point in a successful established carrier, the test of fitness, willingness and ability gains importance when applied to non-operators. In the Great Lakes-Florida report the examiner recommended that the Board find South East Airlines and Virginia Central Airlines not fit, willing and able to perform the air service for which they applied.

In listing his reasons for the recommendation, Rasmussen pointed to the following factors:

► Airline experience is a "must" for at least a majority of the officers of a new airline company. One official of Virginia Central was

described by the examiner as "undoubtedly a well-qualified pilot and fixed base operator," but his testimony "clearly indicates that he is unfamiliar with airline operations."

► Willingness to undertake a new business enterprise similarly is not an acceptable equivalent for air transport. "South East Airlines' only company witness with airline experience was criticized by Rasmussen as having "little realization of the risks involved in an undertaking of the type proposed by South East."

► Elimination of some ground personnel as a method of effecting strict operating economies may be considered unacceptable by the Board or its examiners. South East's proposed plan of handling ground operations through individual contracts with local airport operators as a means of reducing personnel its stand would be unfavorably received by Rasmussen.

► Statements by bank officials, indicating their willingness to underwrite a proposed carrier operation, may not constitute sufficient proof of financial stability. One such official, testifying for South East, revealed that his bank had no written obligation to finance the prospective operator.

► Financing arrangements depending on the applicant's security of permanent certificate also may not prove financial soundness to the satisfaction of CAB. State Airlines' financial program, which contained such a provision, failed to secure the necessary approval. This particular application of financial tests gains added significance in the light of the Board's recommendations. In its Lakes-Florida P-12 opinion, that South East operations should be certificated for temporary trial periods only.

► Feeder route patterns which necessitate considerable duplications of existing trunk services also run the risk of being disqualified as the ground that the traffic will not bear parallel competition, especially over local service segments.

None of the three non-operating applicants in the Great Lakes-Florida case can properly be described as a feeder line. Their applications asked route systems up to 2,566 miles in extent. Although these were based on a need for local service, the examiner found that it would mean this service could be provided by granting additional stops to the existing carrier, avoiding duplications created by new authorities.

Charge 'Vet Appeal' Used in Application

Norman Air Transport, formed of Army, Navy, ATC and RACF personnel, is criticized by AAA at New England Hearing.

Norman Air Transport, a feeder line company formed by a group of service men and war-time pilots, became a center of discussion last week as its case was presented before Civil Aeronautics Board Examiner Herman Friedman in the New England hearings. Charges that the service men were being "used" as a means of securing a CAB certificate were made during oral testimony by one of three Connecticut businessmen who have agreed to finance the company.

Jerome S. Respass, a Hartford, Conn., business executive, testified that he and two associates were prepared to underwrite the proposed operation for \$100,000 if a certificate were secured. Austin M. Zimmerman, counsel for All American Airlines, another applicant in the case, countered: "We have shown it is the intent of these people to use these Veterans to secure a certificate," but was interrupted by objections.

1000 Mile Route Case—Norman's organization is formed of Army, Navy, Air Transport Command, and Royal Canadian Air Force personnel on active service. It is seeking authorization for some 2,500 miles of route between Hartford, New York, Pennsylvania and Canada.

The conflict among established carriers continued to be a feature of the proceeding. Civil Aeronautics Board application for a New York-Portland, Me. route was attacked by Eastern Air Lines Vice President Paul M. Benjamins as a "nose to nose attempt" to enter the New York-Boston market. The case of Bedford, a Boston suburb, as an intermediate point in Coleman's application was the foundation for Britain's charge that Coleman was attempting to repeat its request for a New York-Boston certificate, denied by CAB early last summer.

► EAG, Argued—Benjamins asserted that his company's request for a certification service between Boston, Providence and other New England cities as intermediate stops on its New York-Boston route should be granted to preference to Northeast Airlines'

application for some of the more stops, inasmuch as the latter could not provide service south of New York, which is possible on Eastern's system.

R. Seytice Gernsbeil, Eastern's attorney, said his company hoped for removal of the present restriction which permits service on the New York-Boston run only by flights originating south of Richmond, Va., and Charleston, W. Va. Northeast Airlines' presentation was backed by a statement of President Paul H. Callaghan that experimental operation of helicopter feeder routes should be conducted by an established carrier which can spread the costs of the experimental service over its entire system. He said his line plans the use of the Douglas Skybus for

feeder routes, but was still considering the future employment of helicopters.

Wants Air Closed To Surface Carriers

Bailey, Senate Commerce Committee chairman, opposes any moves by non-aviation interests for international or domestic routes.

Senator Joseph W. Bailey, North Carolina Democrat, and last week that surface carrier operation of airlines should not be permitted internationally or domestically, that international aviation should be restricted to "one or a very few airlines," and that, domestically, existing carriers should be allowed to extend their services in preference to permitting new carriers to enter the field.

Bailey is chairman of the Senate Commerce Committee and has announced that he will ensure control over that body's consideration of aviation matters in the next Congress. He was a U. S. delegate to the International Civil Aviation Conference at Chicago.

Opposes Private Competition. — Despite his reference to one or a few airlines to represent the nation in international air commerce, the Senator is known to favor privately competition in this field. His statement is a recognition of the thing the Airlines Policy Committee has noted, that not all domestic lines will be able to fly all international U. S. flag routes. Back of Bailey's reference to expansion and strengthening of existing carriers rather than allowing newcomers to enter the field is the feeling that to permit entry of the NIS would mean that applicants for air routes to get into the air might make it hard to reduce subsidies. He didn't mention feeder lines specifically but his declaration could be interpreted as advocating operation of feeder services in most instances by existing airlines.

Club Expected. — Not all the members of Bailey's committee agree with his views. A clash can be expected with Senator Pat McCarran, Nevada Democrat, who consistently has advocated opening the field to newcomers. McCarran returned to Washington last week from West Coast hearings of his special committee on decentralization of heavy industry. He plans to introduce both of his aviation bills, one dealing with

domestic and the other with foreign aviation, in the next Congress.

The latter would provide for an "all-American Flag Line" for overseas operation. Hearings may be held on this soon after the first of the year, Bailey plans. There have been many requests that the hearings be speeded, and the chairman indicates that he will grant them. He hasn't determined whether to handle the situation in full committee or to appoint himself chairman of an aviation subcommittee.

U. K. Reveals World Route Crossing U. S.

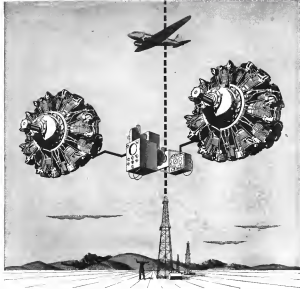
Announcement of military airline follows intensive civil aviation talks at Chicago.

British announcement in San Diego of a military world airline crossing the United States followed significantly the international air route study developed at the Chicago world air route conference. Actually Great Britain began operating her world route as an RAF priority passenger and cargo service a month ago.

Montreal to Sydney. — The flight segment completed at that time extends from Montreal to Australia with landings at Washington, Dallas, San Diego and San Francisco. Pacific landings are being made at Honolulu, Canton Island, Fiji Islands, Auckland and Sydney. Britain's other world route segments are established by flights between Montreal and London and from London to Australia via India.

The Montreal-Australia segment operates twice weekly flights, using four Consolidated Vultee Aconsult Corp. C-47 Liberator transports, capable of offering transportation to 12 military priority passengers plus 2,000 pounds of cargo. Detailed announcement of the service was made in San Diego by Squadron Leader Basil Pitts-O'Brien, in charge of Pacific operations, Fifth administrative, traffic and maintenance personnel are attached to his headquarters at San Diego's Lindbergh Field.

Informed domestic airline operators feel that understandings reached at Chicago, especially with regard to military, pacific operators over any priority claims for post-war routes that might develop from the present British service.



Petroelectronics writes history in the sky

She looked like any other United Mailplane but only on the surface. Inside she was a flying test tube; a compact laboratory in space. Above her, engineers from Standard of California and United Air Lines were seeing, for the first time, what went on inside aircraft engines in flight.

"Petroelectronics," the application of electronic instrumentation to petroleum research, made it possible, Standard's own electronics laboratory

applied many of the instruments which recorded combustion-chamber pressures, cylinder temperatures, and fuel-air ratios; analyzed exhaust gases; checked fuel performance and consumption under varying flight conditions.

For United Air Lines, the tests revealed that lower carburetor settings safely increased fuel economy 8% to 15%, that a certain type of spark plug eliminated preignition, that the

grade of fuel selected powered their engines efficiently.

For Standard of California scientists, this pioneer of all completely instrumented power plant flights resulted in new fields of research—and the tremendously powerful Standard Aviation Division of the present. But Standard petroelectronics hasn't stopped there. It's giving our aviation fuel more fighting punch today—and finding new ways to make it useful in the harnassing of more efficient aircraft for tomorrow.

STANDARD OF CALIFORNIA



ATA Proposal

An Transport Association has approved and passed along to CAB recommendations for a special committee on multiple taxation for a federal statute to govern the problem.

Such a law, it is suggested, should see to it that air carrier's real and tangible personal property with a permanent use should be taxed the same as other such property. But as to movable tangible personal property in regular commercial interstate air transportation, ATA calls for equitable action as a uniform basis at the rate of assessed valuation of tangible personal property generally in the state, and a formula allocating to each state with taxing authority a proportionate local valuation. The same procedure would apply to gross or net income and capital stock taxes.

Rate of taxation of air carriers would not be higher than lowest rate on other types of carriers and highest rate on business corporations currently imposed by the taxing state. The federal law visualized by ATA would exempt air carriers and airlines from all local and local special and miscellaneous taxes, registration and license fees, other than motor fuel taxes.

Noting that the policy of most states exempting from tax motor fuel used for non-highway purposes should be extended, the committee also proposed that federal law provide exemption from state and local taxes of fuel required by CAB regulation before airlines may leave the ground.



WINGED FOR VICTORY by Fairchild

On wings built by Fairchild, the Navy's big patrol bombers—Martin PBM-3 Mariners—fly to war over the seven seas.

They've sent many a submarine to the bottom. They see by the hundred over icy arctic waters; patrol the far reaches of the Pacific; carry bombs and munitions, cargo and men to combat on distant naval fronts.

Behind their constantly increasing numbers is the story of industrial America at war—the story of American vision, enterprise, initiative and coopera-

tion combining to accomplish the "impossible".

Three years ago there was a critical need for these big flying boats. Fairchild undertook the job of building the vital wing panels despite the fact that Fairchild had just launched a heavy production schedule, building famous Cornell primary trainers for the Army Air Forces, and manufacturing other Fairchild-designed aircraft.

In this day of industrial miracles, this Fairchild accomplishment stands as another example of the job that can be done with cooperation, technical knowledge and production skill.

Division of Fairchild Engine & Airplane Corporation, Rochester, Maryland...Raleigh, North Carolina

Fairchild Aircraft

State Legislatures Eye Aviation As New Source of Taxation

Official federal and state groups study situation with view to making recommendations for legislation; CAB committee works on multiple taxation problem.

Indications are plentiful that state legislatures next year will devote increasing attention to aviation tax considerations.

In 1943, there was some aviation tax legislation, but most of the new state air laws dealt with such general subjects as use of planes for forests or commercial services, regulatory matters, and the extent to which municipalities might engage in aeronautical activities, with few exceptions applying exclusively to air carriers.

One of the principal hints that legislatures meeting in 44 states next year in regular session will turn to aviation tax matters comes from the fact that half a dozen official state and federal tax groups are studying aviation tax questions. Five of these are state and one federal, the last Civil Aeronautics Board's own committee on multiple taxation, headed by Member Oswald Ryan.

Study Tax Problem—The Board's research staff also is working with other groups studying tax problems. Among these are two organizations affiliated with the Federation of Tax Administrators. These are the National Association of Tax Administrators and North American Gasoline Tax Conference. The former has a committee on taxation of airlines and the lat-

ter a committee on taxation of aviation gasoline.

National Association of American Officers and National Tax Association have committees on airline taxation and aviation taxation, respectively. Council of State Governments has two, a special committee on aviation and a subcommittee of its committee on taxation.

Many other groups also are looking into the situation, among them the Air Transport Association, which at its regular meeting last month voted to submit to the CAB recommendations for federal legislation that would declare against multiple, excessive and discriminatory state taxation of air carriers, and work to prevent it.

Upheld by Supreme Court—A lot of this interest in aviation taxation was created by the U. S. Supreme Court's decision in the Northwest Airlines case, when it held last May that Minnesota had the right to tax all of Northwest's fleet because it is based in that state. In their 5-4 decision, several of the justices pointed to the need for remedial legislation.

This hasn't helped Northwest's situation, however, and the line a few days ago turned \$123,541 over to Ramsey County, Minn., in per-

sonal property taxes on its fleet for the years 1938 to 1943. Company officials warned that, unless remedied, the Minnesota taxation with compel removal of NWA headquarters to another state. The company pays taxes on portions of its fleet in six other states; only 16 percent of its total mileage is in Minnesota.

Cites High Tax Rate—Northwest also reports that a recent CAB study showed tax payments by airlines have been higher in Minnesota than in any other state. That state, with two commercial air carriers, had all others last year in taxes received from airlines.

Despite the interest in aviation tax questions, however, a good deal of attention is being given to preparation of legislation to cover other aspects. In Massachusetts, for example, a state commissioner of public utilities has disclosed intention to introduce a bill before the January session of the legislature that would give his department control over virtually all airline operations within the state.

The bill would give the utilities commission authority to issue certification of convenience and necessity for air routes within the state, including segments of interstate airlines over Massachusetts terrain if the operator makes more than one stop in the state.

Indiana Legislation—In Indiana, Gov. Henry F. Schricker's commission on aviation met earlier this month at Indianapolis to discuss what recommendations for state aviation legislation it will make to the forthcoming Indiana legislature. Oswald Ryan of CAB told the group that, in the Board's



DRAFTING COMMITTEE FOR INTERNATIONAL ATA:

These men met in Washington last week to draft bylaws for an air transport association as a world scale. Left to right, they are Col. Edgar S. Correll, adviser, president of the Air Transport Association of America; F. W. Farley-Jones, adviser, of CIATO (Conference of International Air Traffic Operators); John Slater, American Export Airlines; Russ Brand, adviser, commercial director, Air-France; Luis Machado

of Cuba; Henry K. Gorsuch of Poland; Maj. J. R. McCord of BOAC; John C. Cooper, ex president of Pan American Airways and chairman of the drafting committee; Leonard P. Fiedler, President of Franco; Per Adolf Norlin of Sweden; and Maj. Henri Lelievre of France. Not pictured are Col. Pedro A. Chape of Mexico, convention member, and Albert Roper, adviser.

opinion, the state's most appropriate function in dealing with civil aviation will be "primarily of a promotional and developmental character," rather than regulatory. Explaining that the Civil Aeronautics Act visualizes competition, in contrast with the policy of other countries, Ryan cautioned that the success of the U. S. policy depends on a simple, uniform control, "impossible to accomplish if 49 governments instead of one attempt to regulate this subject."

Non-Schedule Local Service Proposed

Suggested by Pogue as possible solution to local air transport problem.

Civil Aeronautics Board, at the threshold of a study of non-scheduled air transport that may come in line with its earlier investigation into need for local-feed-backup service, has brought the question of non-scheduled operation as a solution to local service problems.

Advocated by Pogue—The idea was put by Chairman L. Wiley Pogue in a speech delivered for him at the St. Louis meeting of the National Aviation Trades Association. Suggesting that scheduled stops at small cities every few miles probably will not offer very effective competition to railroads, buses and private cars for some time to come, Pogue said he felt nevertheless that there would be frequent but irregular demands for air service to and from small cities. He visualized "something in the nature of a glorified regional taxi service by air." This did not mean proposed local scheduled services are being ruled out. After the local service investigation, the Board announced it was prepared to grant temporary certificates to economically promoting local service.

Pogue observed, however, that non-scheduled air service has become something of a "forgetting possibility" in national air transportation. "When we get down the tube to really small cities," he said, "the total volume of local-distance travel by air might not constitute a major of profitable traffic flow and possibly its wide geographical dispersion could not be fitted to any rigid route pattern. . . . Why should we restrict with conditions that are not necessary the flexibility of air transportation to these small communities?"

Pogue H. highlights

Excerpts from the speech by L. Wiley Pogue, Civil Aeronautics Board chairman, before NATAN 5th annual convention at St. Louis.

- ▶ If air transportation is to become our nationally accepted means of passenger and mail transportation . . . and . . . make a significant contribution to cargo carriage, we cannot have the nation only half-dressed with air service.
- ▶ I believe that volume of non-scheduled operations constitutes an important development in air transportation. . . . After the war, the resumption and expansion of non-scheduled operations may provide the means of creating two or three thousand instead of only 600 persons to get into a business of their own in developing this form of air transportation.
- ▶ I believe that non-scheduled operations offer the possibility of developing a considerable business in the small communities. . . . It seems clear to me that the thinking which has been done thus far on the local service problem has not undertaken with sufficient vigor a definition of the full field of opportunity for the non-scheduled operator.

Form Transport Body

A British Commonwealth Air Transport Council was formed in Montreal at a meeting of ministerial representatives of Great Britain, Canada, Australia, New Zealand, Newfoundland, South Africa and India following the Chicago International Air Conference. It will provide an informational exchange among the members of the British Commonwealth and Empire.

Crash Unexplained

Testimony taken by Civil Aeronautics Board accident investigators in two days of hearings on TWA's Dec. 1 accident near Burbank, Calif., failed to suggest any cause for the mishap other than that the plane was below the altitude customary at the peak of the accident. The plane and its instruments apparently were functioning properly at the time of impact, while no instrument approach was being made at the pilot's direction. Why the plane was not operating at the usual

2500 to 3000 ft. altitude remained unexplained.

ATA Backs Roosevelt Ship-Airline Stand

Gorell criticizes surface carrier's argument that air subventions are needed to maintain strong Merchant Marine.

Preliminaries to next year's battle by surface carrier interests to secure Congressional support for their attempts to enter the air transport field appeared last week to be well under way.

At a session to a report by the House Merchant Marine and Fisheries Committee favoring the steamship companies' plea, and the letter reportedly written by President Roosevelt to the Committee chairman, Senator Otis M. Mendenhall, in which the President is said to have favored separation of the forms of transportation, Col. E. S. Gorell, president of the Air Transport Association, threw his organization's line behind the President's view.

On Argument Aligned—Gorell's statement attacked the familiar surface carrier argument that air subventions are required if the shipping companies are to retain enough business to preserve a strong merchant marine. This reasoning, if carried out, he said, would mean either the abandonment of surface carriers to the detriment of air transportation, or the diversion of airline profits to subsidizing merchant marine operations rather than using them to improve air transport.

ATA Elects Officers

With one exception, Air Transport Association officers were re-elected at ATA's recent annual meeting. Re-election is Vice-President Cyril Hunter of Northwest Airlines, whose plane was taken by J. W. Miller of Mid-Continent Airlines. Col. Edgar S. Gorell was re-elected president, J. F. Elmendorf, treasurer, and M. F. Redfern, secretary.

Names of former directors William A. Patterson of United and Theodore C. Grosvenor, formerly of Continental and now of American, are missing from the new list of directors, which now includes Eddie Rickenbacker of Eastern, Jack Fryc of TWA, G. M. Hoar of American, Cyril Hunter of Northwest, T. E. Beaufort of Southwest, C. Bechtel Monro of PCA, and Paul Collins of Northeast.



Dear Bro. Joe

As a Thunderbolt-maker to a Thunderbolt pilot, I just wanted to tell you how as in the Republic plant feel about you guys. Sometimes we think being pretty good. We build one of the toughest fighters of this war. We build 'em fast - more than 10,000 so far. We see them go out of here loaded for every front. We read about them in the newspapers. This is why we burst out and then with a big hurrah for ourselves.

But...and this is the reason for this letter...when the shooting and the back-patting are all over, we know a Thunderbolt is only eight tons of noisy machinery until one of you guys takes her up into the blue. Only then is it a fighting plane.

So let me tell you this: there's a prayer in just about every bolt and rivet of these 10,000 Thunderbolts. The prayers that are sort of dropped in by us folks along the assembly line are one particular guy who's going to fly her and fight in her.

So this is the way we feel about you, Joe. It is a small thing we do beside the big thing you do.

Write soon.

Your devoted brother,

Charlie



REPUBLIC AVIATION

CORPORATION
Specialties in High-speed, High-altitude Aircraft

Future Civil Plane Controls

Two questions which have plagued the light aircraft industry since the start of Washington's latest urgent campaign for intensified war production and less civilian output have been answered by Grover Loening, WFB's head consultant on aircraft:

(1) WFB will continue to make every effort to allow manufacturers to develop civil aircraft prototypes on a laboratory status.

(2) WFB will permit all further civilian plane productions which does not impede the war effort. Fortunately for the nation and aviation, WFB has had a capable, firm and outspoken adviser in Grover Loening. His high estimate of the value of civilian prototype development is typical of his views.

"There are countless developments in a prototype way that can be done now by the aircraft industry in armament at a peacetime product that would nevertheless have a war value," he told the NATA convention.

"The helicopter field is still wide open and needs a great deal of work to be done on it. There is order with all its important blind landing implications for future airline and private flying. There are jet-engine applications to simplify and cheapen the private airplanes. There is that great new field of the development of glider trams for much cheaper and more versatile air transportation of freight which has been almost untouched except by the military.

"Still more, better, faster and cheaper-to-run commercial transports of all sizes have a concurrent military value. A new field of great significance from a military angle that has an equally great commercial possibility is development of small, airborne aircraft that will connect the great airliner to the ground as a tender does the great ocean liner without making it necessary for the airliner to land.

"Even these two outstanding needs for successful private flying promotions, the cross-wind landing gear and development of a trolley to get away from the airplane's nose mase, have a military usefulness, even though they are not mandatory."

Mr. Loening assures the flightplane industry at this time that wherever possible companies will be permitted to go beyond mere prototype work

and start regular production, provided labor is available and cannot be used for warplants, and provided the manufacturer has no further war orders. He also makes it clear that no companies will be compelled to remain idle merely because other firms in the field are unable to re-enter the commercial field.

"We know just as well as you do of the unfair situations that will arise as between one company and other companies in the same field. But as it will be unbusiness, as in all life, there is the element of luck, and we do not control it." Let it be said to Mr. Loening's credit that he does not even propose that government should try to control it.

Recognition, British and American

THE BRITISH GOVERNMENT, frequently cited by the Americans for sagaciously awards of service ribbons to members of their armed services, has announced it will grant recognition to British Overseas Airways Corp. pilots, navigators, radio operators and engineers on much the same basis as it decorates its Army, Navy and other service personnel.

British Information Service points out that since the war began these crewmen have flown unarmed aircraft all over the world, often into hostile areas, keeping open vital communication routes under orders of the British Government.

Our own pilots of the Air Transport Command and Naval Air Transport Service, whose combined operations dwarf the BOAC system, have had the added responsibility of ferrying desperately needed aircraft into the war zones, but no effort has been made by either the Army or Navy to render on these men recognition of their services. Thirty consecutive days in the area still is the minimum requisite for a theater ribbon. We recommend the matter to the proper Washington authorities.

Looking Ahead?

ONE of the most interesting sessions scheduled for the National Aviation Trades Association Convention in St. Louis was to have been a discussion by manufacturers of private-owner type planes in new developments in their post-war aircraft. It was canceled at the last moment. Its subject: "Aircraft Manufacturers Look Ahead."

Romer H. Wood

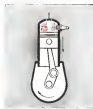
New Flight Instrument guards against fuel waste!



M.I.T.-SPERRY DETONATION INDICATOR INSURES FUEL ECONOMY ... LONGER ENGINE LIFE ... GREATER SAFETY



1. THE ENGINEER on this engine may be detecting, but the pilot has no way of knowing. Detonation means destructive combustion. In your car, you can feel detonation. In aircraft, the same level is too high.



2. DETONATION increases internal temperature and pressure tremendously. If continued, it damages engines, may cause failure. How is it possible to tell when detonation occurs in flight?



3. THE M.I.T.-SPERRY Detonation Indicator detects detonation instantly. A flashing light on the instrument panel warns pilot to change fuel mixture. Result? Greatest operating efficiency without damage to engine.



4. REMARKABLE savings in fuel! Preliminary tests show savings of 80% on some over 100000 airline pounds. Fuel used can be added. Safety is increased ... engine life prolonged ... periods between overhaul lengthened.



5. THE M.I.T.-SPERRY Detonation Indicator is installed centrally—requires no piercing of cylinders. Visual signal given instant warning of detonation. A selector switch then determines in which cylinder combustion is faulty.

6. ANOTHER feature of this (new) indicator may be used in conjunction with the Detonation Indicator. When detonation occurs, this device automatically and instantly eliminates this condition and keeps as long a mixture as possible without sacrifice of power.

The Detonation Indicator is designed for use on all types of engines and aircraft. Where economy of operation is important, as it will be in postwar commercial aviation ... this new flight instrument will stand out prominently against successful conditions.

Sperry Gyroscope Company

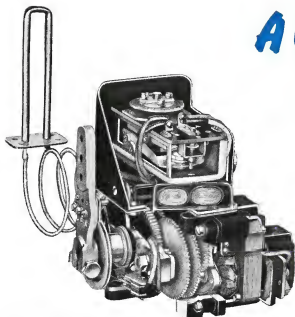
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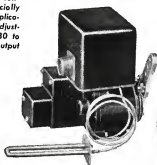
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Compact temperature controlled actuator especially adapted for anti-ice applications. Arm rotation adjustable within range of 30 to 120 degrees. Torque output up to 75-inch pounds.



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CARBURETOR MIXTURE
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Authorized manufacturers concerned with the above or similar applications may secure engineering data on request.

POST-WAR PRODUCTS NEED CONTROLS, TOO

Whatever is on your drawing boards for post-war, it's two to one it will have automatic features. If these features involve control by temperature or pressure, investigate controls made by White-Rodgers.

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Sturdy and compact, this modulating control weighs but 4.35 pounds, is dust-proof and moisture resisting. Dimensions less than 10" x 3" x 5".



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